mental health digest

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NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM

cover story

Information Interchange

The design on the cover represents the multiple disciplinary make-up of the new National Institute on Alcohol Abuse and Alcoholism focusing its efforts on the target problem—alcohol. The arrows also stand for the interlocking responsibilities of the Federal, State, and community services in their approach to the solution of one of the Nation's major problems. As a part of this interlocking process, the NIMH sponsored an Information Interchange for alcoholism on August 24-27. Details of this Interchange appear on page 51 in the Mental Health News Digests section.

mental health digest

The *Mental Health Digest* is a monthly publication designed to reflect the whole spectrum of mental health and to present a broad sampling of scientific subject matter and professional points of view. It contains condensations of material selected from the current mental health literature. The condensations are published with the approval of the authors and publishers for use in the *Mental Health Digest* only.

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The First Three Years of Life: An Overview of a New Frontier of Psychiatry

REGINALD S. LOURIE

My task is to bring more clearly into focus what is slowly but predictably becoming the new frontier of psychiatry—the first three years of life. It has been summarized as the task of helping a small, helpless, mindless being become "humanized," a member of society, an individual in his own right, and to develop so-called civilized patterns of control over his impulses. We have known for a long time that the roots of many of the major mental health problems are in childhood, but more recently we have been forced to look at how early. This survey will attempt to interweave the newer information with what we already know about what goes on developmentally.

If we are to start at the beginning of life for our understanding of normal and abnormal development, we must start measuring age from the date of conception. A new type of behavioral embryology is evolving and must eventually be included as a basic science for psychiatry. We have only hints about the earliest stages the brain-body interactions go through, but the finger increasingly points to the prenatal period to help us understand the psychosomatic problems of later life. We must ask ourselves when it is that an organ or an organ system develops a pattern of reaction to stress. Is it when there is acute or chronic stress during its formation that a pattern of response is established, such as when the oxygen supply is suddenly threatened? Does this imprint the kind of response that organ or system will make when later stress is encountered?

Thus far there have been postulated a so-called "umbilical stage" when the hematological system learns a pattern of response to stress and a "deglutive stage," when the fetus first learns to swallow, etc. There are increasingly ingenious devices for interventions directly into the uterus that will permit monitoring and eventually corrective approaches with the fetus. It is postulated that the major single determinant of what kind of fetus we are dealing with is the nutritional state of the mother at the point of conception.

Once born, the individual enters a period in which the brain will grow more rapidly in the next 18 months than it ever will again. The inputs during this period of brain growth begin to build on the foundations begun in prenatal life. This is the time when the brain is most plastic and when appropriate interventions to correct pathology can be most effectively made. The genetic potential, in terms of the development of the anatomical structures of the brain, is not reached at birth. The blueprint of that genetic potential is such that in order to be unfolded to its fullest, organic, anatomical-maturational processes of the brain structures must continue after birth. But such continuation is not only dependent on internal, embryological maturational forces, but in the interaction of such forces with different forms of external stimulation without which interaction the embryological maturational blueprint will not unfold to its full potential.

We know from embryological studies in animals and humans that there are critical periods for the develop-

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ment of specific organ functions; developmental time limits exist, and if the right type of stimulation is not forthcoming during that critical time, the result may be a structure not necessarily damaged but one that has not developed to its full potential. Resulting developmental lags can be undone, which indicates to some that we cannot talk of critical periods of development for the human but rather optimal periods, but the evidence strongly suggests that the individual can never completely recapture his original potential once the optimal period for development of a part or a function has passed.

We should realize that the psychoanalytic formulation of oral, anal, and the beginning of phallic stages of development in the first three years describes only headlines. If we look at the fine print, we see dozens of stages —at least one for every new part of the body as it comes into voluntary control and for every new function as it develops. Each new part is experimented with in terms of "How can this new found part of me be used in the service of the instincts?" This holds true for each of the ego functions. Even as we have established at least some understanding of the stages through which the young organism goes in the development of personality, we are only beginning to look at them in terms of their influence on individual differences in constitutional makeup. For example, as perception and awareness develop the baby moves from a relatively unrelated stage at birth to a picture of himself as a completely dependent part of another person; this normally occurs by three to five months. If something intervenes that makes this step difficult to achieve, a range of distortions in the individual's concept of dependency, closeness, and trust can result.

If we match up constitutional vulnerabilities with assets, we will have a much better picture of how a baby needs to be handled to help him achieve optimal development, beginning with object relationships. Tactile hypersensitivity—experiencing being touched as painful—provides a hazard to being comfortable with closeness and to seeing oneself as part of another person. If the baby does not elect to remain unrelated, if the need to be part of another person is sufficiently great, he will make the first step. However, the resulting picture can include a long-lasting expectation that dependency involves pain. Masochism can have its beginnings here. If this individual distortion in makeup is recognized early and properly handled, it will not interfere with normal early development.

It is now possible to take an inventory of constitutional factors early in life so as to devise methods of handling that can help prevent poor answers to the problems of early personality development. We can take note of imbalances, deviant arousal patterns, low energy and "sending power," liabilities, disturbances in integrative capacities, the threshold for stimuli, special sensitivities, and structural difficulties. We also rate adequate sending power, curiosity, and flexibility as measured by the ability to provide substitutes, fend off pressures, turn away, alter the environment to organize, protect the self, and get needed help or support. We want to know about persistence, determination, usable antennae, and stable somatic integration.

It used to be said that children with gross defects received the most attention, while those with milder or minimal distortions often had to wait until school age before their handicaps were recognized. More recently, it has been

recognized that the blind, the deaf, and the cerebral palsied and otherwise brain-damaged child not infrequently present multiple handicaps that also may be overlooked because emphasis is placed on the major presenting problem. It may take only one major handicap to influence ego development, but we more often find a combination of minor ones that can frustrate the compensatory efforts of the organism to be as "normal" as possible. A passive child with a perceptual hypersensitivity to light, sound, touch, temperature, or pain cannot cope with stimuli that other babies could avoid. One of the most difficult vulnerabilities to identify in early life is the tendency for thinking and coordination to become disorganized under stress. This becomes evident in the form of disorganization of motor activity. The stress situation in turn may also be related to other vulnerabilities in constitutional makeup, such as a low threshold for displeasure, hostility, or anxiety. The end result can be a feeling of helplessness, which is the worst feeling in the world.

The purpose of identifying these individual differences in constitutional makeup is to insure the healthiest possible development of the rest of the ego functions. The child should be helped to develop an optimistic attitude and a positive approach to problem solving; the purpose of cataloging this information is to help parents to be aware, to recognize the problem, to step in and assist in correcting the anxiety-producing situation. Likewise, in the case of the infant who is too compulsive and cannot shift away from a subject, the availability of someone who can change the scene or mood helps him develop a wider range of affect, more capacity for fun, joy, interest in new experiences, play, and ultimately creativity. The development of the sense of reality requires experience with and selective use of the environment. The child with perceptual-cognitive maldevelopment, for example, has difficulty in acquiring correct concepts of objects, space, time, etc., under conditions such as anger or frustration.

The concept of self and body image can also be distorted under such conditions. The hyperactive child whose caretakers do not realize that he needs their help in putting the brakes on is particularly subject to distortions in these areas. He must avoid the feeling of helplessness at all costs. When a poorly controlled pat becomes a slap, he says "I wanted to hurt." Yet underneath these defenses he has a poor opinion of himself. If this continues, he has a good chance of being a depressed, self-defeating school-age child and adolescent.

It is apparent that almost endless combinations of weaknesses, handicaps, strengths, and resources are possible. That many infants solve the problems posed by potential handicaps in the process of maturation and regulation is evident from the ones who seem to "grow out of it," i.e., whose developmental delays are overcome.

At the beginning of life there is no connection among the senses. They need to become coordinated and integrated to optimally negotiate the development of the ego functions, of memory, reality testing, the ability to think abstractly, to fantasy, and to develop curiosity. In other words, there are "organizers" in the infant's experience. A major one is vision. Another organizer that we are finding out about is pain. However, to answer those who think only mechanistically about such developmental processes, there is evidence that affect must accompany the provision of stimuli in order to have effective ego develop-

ment. It is the affect that makes it a fundamental educational experience and one that is permanent.

The baby at an average of 8 months is able to see himself as slightly independent when it is able to crawl away from its mother and to identify strangers and strange places; this stage of separation anxiety thus becomes another personality organizer. Inappropriate solutions to this first phase in the development of independence have been implicated as the precursors of later depressions, as well as to the persistence of fear of strangers and anxiety in the presence of anything new or different. More recently this stage has been implicated in the onset of leukemias, lymphomas, and lupus erythematosus. When a baby, to demonstrate that it is not helpless when left by its mother, turns away from her and finds that his leaving or "getting rid" of her is a way of hurting her, it has learned an important lesson. There is an element of this kind of thinking in most suicides, i.e., thinking how the people left behind will feel.

The second and third years of life are busy ones in terms of personality development; character formation proceeds actively and much of it simultaneously. To apply the concept of organizers to a few highlights in these years: The stage of negativism is an organizer of the will. Body image development is an organizer of self-respect. An important current problem in this area is the development of racism. When we ask at what ages a child begins to look at itself and ask "Is black or white or red or yellow good or bad, is it clean or dirty, is it beautiful or ugly?", we find it is in the third year of life that the first and often most important answers are established. Toilet training is one example of the processes of learning body control that are organizers of the individual's control system. This type of control is most actively developed in the second year of life and becomes integrated with the process of control over impulses. Violence as a way of life can have its beginnings here. As part of moving through further stages in the development of independence, another organizing process centers around exploration of property rights, "what's mine and what's yours." This becomes integrated with respect for rules, moral values, respect for privacy, territoriality, etc. The groundwork is laid here and in the control system for later delinquency. Later the lessons learned are carried into the exploration of "who is mine and who is yours."

These few examples indicate how those concerned with the problems of human behavior must be concerned with the first 3 years of life if the roots of later pathology are to be identified in the interest of prevention and early modification. Poor answers in the early stages can complicate later stages and lock in place poor problem-solving techniques, patterns of reaction, and fears.

Early Personality in the Congenitally Blind Child

LENORE L. MCGUIRE AND C. E. MEYERS

It was the purpose of this study to advance the state of information and theory on the personality development of the congenitally blind. The study sought to determine the prevalence of problems in personality growth; to determine whether or not personality problems are the inevitable correlates or consequences of particular biomedical etiologies; and to progress toward a theory of relation between deprival of vision and the problems exhibited by the congenitally blind.

This study employed young blind children who were available for observation and met criteria of age, sufficiency of information, and absence of primary retardation or transcendent problems other than visual. The larger portion of the information was derived from 27 totally blind children who were followed for 1 to 8 years. Fifteen of the 27 cases were known through private consultation in the home and clinic or through community agency contacts supplemented by home visits, or a combination of these. Twelve cases were known through a State hospital for the retarded which had a special program for the blind retarded. These 12 hospitalized cases had the same characteristics as the nonhospitalized: able-bodied other than the blindness, young, and with histories of creating difficulty because of being withdrawn or acting out. On these 27 well-known cases, the following sources of information were available: home visit interview information; information from therapy sessions with child; agency record information concerning medical, psychological, and social work evaluations of child and family; hospital records; rosters of public school classes for the visually limited, consultative work with schools and centers, and family counseling contacts.

Blind children are few in number, hence systematic testing of the hypotheses was not possible. It was only possible to employ the knowledge of individual cases to the hypotheses.

As to prevalence of problems no rate can be developed, for it was impossible to discover and observe all blind children of the area. The most likely omissions from observation would be the in-migrant children not yet known to any authority or service, and children in impoverished or minority status, whose parents are less likely to have sought help. Making such allowances, and with some knowledge about a considerable number of children through various sources, the question about prevalence of problems is answered by the indefinite but positive statement, "most of them."

The next question concerns behavior in relation to etiology. The adjustment problems were found with all the diagnoses. There was no evidence of a typology of personality of any kind, by sex, etiology, prematurity, or otherwise. The problems found were general and, while similar to those in normal children, they were more intense and troublesome. Three chief features stand out: (1) an elective autistic type of behavior which was more of a purposeful passive aggression than a withdrawal; (2) defiant and upsetting behavior as a continual demonstration of power; and (3) verbalized self-concept of badness.

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As to the 12 hospitalized children, the diagnosis of retardation could be challenged. Blind children commonly exercise a form of control by withholding cooperation and compliance, refusal to learn, etc., and do not appear unwilling to be thought of as stupid. The study of the commitment history leads to the conclusion for all 12 that it was the harassment of the parent which led to the commitment. The behavior resembling autism probably grew out of the first-year self-preoccupation. The child omits the normal early locomotion of rolling over, creeping, and crawling, and the concomitant distal-spatial exploration. This omission is attributed to the lack of distal perception normally enjoyed in the prelocomotor months, and to the lack of incentive of distal objects. In the period of about 8 through about 14 to 15 months, rather than the normal exploring, the child has stayed in place, spending the time rocking and eye-poking. He may soon have a well-established self-preoccupation habit, easy to resort to for passive defiance later. Interpersonal problems appear during the early years in excessive attention-getting, resistance, destruction, defiance, as if to maintain the power to upset others.

The early school years show elaboration from these beginnings, particularly in more involved upsetting of others, defiance, and destruction. Further segregation occurs at school age, when some children are rejected as incapable or uncontrollable, leading sometimes to institutionalization.

Much free time in school is spent in solitary rather than cooperative play; interpersonal behavior may show hostility and attempts to dominate. School achievement is poor, though some of the under-achievement is a continuation of the stubbornness that dated from the earliest interpersonal reactions. Much of this behavior is "normal," in that it is common to children generally, but it is in much greater concentration here than in sighted children. The distress of the parents leads to finding ways out, and by the time the children are pubertal, a considerable proportion of them have been institutionalized.

When one considers that the blind child is deprived of one of his two cognitively important channels, one may postulate a cumulative deficit. Learning of things and people in space is retarded if not altogether deprived. A normally sighted child has a "control" over it at least in visually locating sources of auditory and touch stimulation. The psychological reality of the testing out at a distance and the imitation of others in the sighted child is that he is in control of the process. In contrast, the congenitally blind child has difficulty in exploring his environment to control it, not only because his exploration is not visually stimulated, but also because of the greater anxiety of his elders. His development must depend much less on self-initiated, self-controlled imitation of his family; of necessity it must be guided from without to a much greater degree. Such guidance is too often by anxious parents protectively concerned, actively trying to supervise, and not able to relax in the enjoyment of the child. The child does not control his own time and development, which are too much involved in interpersonal activity, with a relative absence of those many qualities subsumed under such concepts as ego and independence.

The conclusion drawn is that the behavior disturbances have a psychogenic base. They are a high risk of, but not inevitable to, congenital blindness and do not seem to be related to a biomedical etiology of the blindness.

Average Evoked Response and Verbal Correlates of Unconscious Mental Processes

Howard Shevrin, William H. Smith, and Dean E. Fitzler

A number of recent studies have shown that the average evoked response (AER) varies concomitantly with a variety of psychological factors. Researchers have explored the relationship between the AER and attention, discrimination of subliminal stimuli, the free association process, and repressiveness. The AER literature is characterized by a diversity of methods for identifying AER components. This study explores two different methods for identifying relevant AER components.

Twelve pairs of same sex twins served as subjects, aged 12–21. Six of the pairs were male and six were female. Average evoked responses were recorded by an electroencephalograph. Stimuli were presented in a two-field tachistoscope. The AER component which discriminated between two subliminal stimuli was identified on the basis of a sequence method. The specific criterion used to identify the component was the first positive-going peak occurring 90 msec post-stimulus (measured from the preceding negative-going peak). A sequence method assumes that the functionally relevant component occurs at a certain position in a series of components and within a narrow latency band usually determined empirically. We also decided to identify components on the basis of peak amplitude in a certain critical time interval, leaving open the question of latency shifts. The key component is identified as the largest, positive-going wave within a broad time range: 40–260 msec post-stimulus. Most activity reported to have functional significance has been found within this time interval. This method makes no assumptions about sequence or latency. It does, however, assume that the largest amplitude within a wide time interval is likely to be functionally relevant. The sequence method assumes that order as well as amplitude of activity is functionally significant.

The two stimuli employed were matched for size, color, general configuration, and brightness, but differed in internal contours in such a way as to give specific content or meaning to one of them. The meaningful stimulus (R) was a picture of a pen and a knee and the matched stimulus (D) was a picture of two geometrical shapes similar to the pen and knee. Bipolar (EEG) recordings were made between the frontal, vertex, and left occipital placements; the left ear was grounded. Frontal-occipital leads provided the main findings to be reported.

Three series of 60 stimuli (30 of each stimulus) were presented at 1 msec, 30 msec, and again at 1 msec, thus providing a basis for comparing verbal effects and AERs above and below the threshold for conscious discrimination. Each series of 60 stimuli was divided into six blocks of ten each, five presentations of each stimulus presented in a random order. Subjects fixed a black dot in the center of the field and were asked not to blink until notified to do so, not less than 2 sec after each stimulation. Eye movements and blinks were monitored; EEG responses were eliminated if these artifacts appeared in the record, or if the stimulus was delivered in the midst of an alpha burst. After each

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block of 10 stimuli, the subject was told to relax, close his eyes, and describe as fully as possible what he had seen. No subject could describe seeing a stimulus following the 1 msec exposures, although the content could not be identified. Verbal effects were then measured by a 2 minute period of free associations, restricted to single words. Free associations were scored for the incidence of words related to the meaningful stimulus. Three types of associations were scored: (1) words conceptually related to pen and knee; (2) words homophonically related to pen and knee, such as *pen*nant and a*ny*) and (3) words associated to the homophonic combination of pen and knee, *penny,* such as coin, round, etc.

The first type of association will be referred to as *conceptual association* because it is based on the word taken as a concept. The second type of association will be referred to as *clang association* because it is based on purely phonic relationships. And the third type of association will be referred to as *rebus association* because it is based on the clang combination or pictorial representation of a word ordinarily referred to as a rebus. These different types of associations were scored in order to tap different levels of thought organization related to rational and irrational thought and to the psychoanalytic concepts of primary- and secondary-process thinking. No subjective judgment was involved in the scoring because norms followed lists by associates or objective rules.

In a series of other studies it was found that more associates appeared to a stimulus not consciously discriminated than to the same stimulus when it was consciously discriminated. Thus there would be more associates obtained following the 1 msec stimulus exposures than following the 30 msec exposures. This comparison of the verbal effects following two exposure conditions was made necessary by the fact that both stimuli (R and D) were flashed within each block of trials prior to obtaining free associations. This presentation was used in order to maximize AER discrimination between the two stimuli and to minimize habituation effects. Using this method for identifying subliminal verbal effects, it was found that knee associations and penny associations appeared more frequently following the first 1 msec exposures than following 30 msec exposures.

Two judges independently identified and measured the AER components on the basis of the sequence and peak amplitude methods. The main findings replicated the previous results with respect to first 1 msec condition: for both the sequence and peak amplitude methods the response to stimulus R was significantly greater than to stimulus D. Although for both methods the response to simulus R was greater than to stimulus D for the 30 msec condition, the difference was not significant, thus failing to replicate the previous finding for the condition during which the stimuli could be consciously discriminated. No significant differences were found for the second 1 msec condition. When a nonparametric test was applied to the data so that variances would not affect the outcome, the 30 msec condition for both the peak amplitude and sequence methods was significant in the expected direction: amplitudes were greater for stimulus R than for stimulus D. The second 1 msec condition remained nonsignificant, while the first msec condition was significant for both methods.

When the AER data from the first study were assessed by the peak amplitude method, it was possible to perform a complete, repeated measure-

ments analysis and the same finding appeared as for the sequence method: the response to simulus R was significantly greater than to stimulus D across all conditions. Thus, using both the sequence and peak amplitude methods, it was possible to show in two experiments with different groups of subjects that an AER component could discriminate between two subliminal stimuli. The two methods resulted in different latency findings. For the sequence method, the positive-going component in the 30 msec condition was significantly later than for either 1 msec condition. However, for the peak amplitude method, the reverse was true: the peak positive amplitude was significantly earlier for the 30 msec condition as compared to the two 1 msec conditions.

Several differences emerged as a function of age. Examination of the data suggested that the wave components treated by the two methods tended to be identical for the older subjects (17 years and older) but different for the younger subjects (13 to 16 years). When we compared the 12–14-year-olds in our sample with the 16–20-year-olds we found that for the peak amplitude method the younger group had significantly greater amplitudes for stimulus R for the 1 msec-1 and 30 msec conditions and for stimulus D for the 30 msec condition only.

In addition to using the original word association norms based on an undergraduate college sample, norms for the particular group of subjects used in this study were derived in order to take into account the fact that most subjects were below college age. Using the college norms, the verbal effects found previously were not replicated; however, for the group norms the incidence of knee associations in the first 1 msec condition was significantly greater than for the 30 msec condition. The penny association effect was not replicated. In order to investigate the stability of the knee finding, group norms were derived for the subjects in the first study. The same knee effect was found. Thus, a verbal subliminal effect was replicated as well as a subliminal AER discrimination.

When advantage was taken of the twin design in this study and a within twin comparison made, it was found that the twin who had the larger amplitude (sequence method) for stimulus R in the first 1 msec condition also had the higher incidence of knee associations. This relationship was not found for stimulus D for the first 1 msec condition nor for either of the stimuli in the 30 msec or second 1 msec series. Findings were in the expected direction for the peak amplitude method but were not statistically significant.

The AERs were scored for the presence or absence of alpha-like activity in the same time interval. Findings were significant only for the first 1 msec condition. For stimulus R, both penny associations and clang associations were significantly associated with alpha-like activity. The effect for *ny* clang associations taken separately was significant in the expected direction, while the effect for *pen* clangs was not significant. For stimulus D, no effects were found for the combined clang associations or for *ny* clang associations; however, subjects with alpha-like activity present in their AERs following stimulus D had a significantly *lower* proportion of penny associations in their free associations than subjects whose AERs contained alpha. This latter finding suggested that subjects whose AERs discriminated between stimulus R and D, containing alpha following stimulus R and none follow-

ing stimulus D, should show the strongest homophonic effects in their free associations. This relationship was found to be true for penny associates and *ny* clang associates. Subjects whose AERs contained alpha following stimulus R and not after stimulus D produced significantly more penny associations than those who showed the reverse discrimination, or had alpha-like activity present in both AERs or in neither AER. For *ny* clang associations the effects were weaker, the main significant differences occurring between the positively discriminating group and the negatively discriminating group and the group in which no scorable alpha-like activity was present in either AER. For knee associations, which had been found to be related to AER amplitudes, no relationship to alpha-like activity was present. The relationship between AER alpha and penny associations may account for the failure to replicate the penny association effect for the subject group as a whole, for only those subjects whose AER alpha differentiated between stimulus R and D showed the predicted subliminal effect. When these subjects were compared against the remaining subjects for this penny association effect a significant difference was present.

This study demonstrates that a stimulus not consciously perceived can nevertheless elicit an electrophysiological response (AER) and influence a verbal response (free associations) which are, in turn, related to each other in certain definable ways. Moreover, these findings are replicable across subjects and across different methods for identifying AER components. As such, the approach provides an objective and manipulable way of investigating complex, unconscious thought processes.

The latencies of components as identified by the sequence and peak amplitude methods are sufficiently close to each other so that it is likely we are dealing with functionally comparable components. These latencies are well within the range associated with attention, or with some type of complex information processing. The AER amplitude component occurring within the latency range associated with conscious attention which discriminates between stimulus R and D at 1 msec may indicate that an unconscious act of attention has occurred. The greater the attention given a stimulus, the more likely it is for the stimulus to be perceived veridically. Unconscious attention appears to work in the same way. We may hypothesize that AER amplitude indices occurring within the 100 to 260 msec range are associated with attention and veridical perception, conscious or unconscious, and that alpha-like activity occurring 1½ seconds post-stimulus is associated with a "loose," less veridical processing of the same stimulus input.

There were two AER factors which appeared to be a function of age: (1) amplitude, and (2) component disjunction related to the two AER methods. Until further work is done, it is hazardous to speculate about the cause of this amplitude difference. However, in view of the relationship between AER components and such dynamic factors as repressiveness and unconscious mental processes, there may be prominent personality factors associated with this AER developmental change.

"Normal" and "Deviant" Sexual Behavior

JUDD MARMOR

No discussion of human sexual behavior can be truly objective if one does not attempt to stand outside of the narrow framework of one's own cultural bias to see how the raw data of human sexual biology are shaped by and shape the infinitely varied mosaics of human experience in different places and at different times.

Our contemporary sexual codes and mores, seen in historical perspective, would appear no less grotesque to people of other eras than theirs appear to us. Our attitudes concerning nudity, virginity, fidelity, love, marriage, and "proper" sexual behavior are meaningful only within the context of our own cultural and religious mores. In the first millennium of the Christian era, public nudity was no cause for shame, marriage was usually a temporary arrangement, and extramarital relations were taken for granted. Women were open aggressors in inviting sexual intercourse. Bastardy was a mark of distinction because it often implied that some important person had slept with one's mother. In some early societies all the wedding guests would copulate with the bride as a way of strengthening the marriage in that the pain of the initial coitus would not be associated with the husband.

It was not until the Medieval Church was able to strengthen and extend its control over the peoples of Europe that guilt about sexuality began to be a cardinal feature of Western life. The Medieval Church exalted celibacy and virginity. In its efforts to make license in sexual intercourse as difficult as possible, it sanctioned it only for procreative purposes and ordained laws against abortion. When the sexual taboos of the Church began to be widely enforced by cruel sanctions, a veritable epidemic of sexual pathology ensued—sodomy, flagellation, hysterical "possession" by witches and devils, incubi, succubi, phantom pregnancies, stigmata, and the like. In contrast, in societies in which access to sexuality was open and guilt-free, the so-called sexual perversions tended not to be present.

Zoological and cross-cultural studies in recent years clearly demonstrate that the issue of sexual behavior goes far beyond its reproductive functions. Patterns of sexual behavior evolve with the species, and at higher mammalian levels there is an increasing emphasis on various sex-related activities rather than on purely reproductive ones. Sex in human beings is usually spoken of as being an "instinct." It is a fundamental behavioral pattern dependent on internal biological factors but capable of being triggered by external cues. Either may create a state of disequilibrium experienced as urgency or tension; this tension then leads to behavior that has the effect of restoring the previous state of balance, with an accompanying sense of subjective gratification. Such a reaction takes quite a different form in human beings than it does in lower animals, even though the term instinct is used equally for both. As one moves up the evolutionary scale inherited instinctual patterns tend to become less preformed and more subject to modification by learning.

The essentially unfocused quality of man's sexual drive in infancy has been referred to as man's inherent "psy-

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chosexual neutrality" at birth—a neutrality that permits the development and perpetuation of diverse patterns of psychosexual orientation and functioning in accordance with the life experiences each individual may encounter and transact. In human sexual behavior, situational and learning factors are of major importance in arousal and response. In the absence of heterosexual objects, human beings may ultimately seek gratification in homosexual objects, or if no human object is available, in relations with animals of other species, or even by contact with inanimate objects. Even the phsyiological route of gratification, whether through the genitals or some other erogenous zone, or via patterns of behavior which seem to have no inherent elements of erogenicity in them at all, are subject to conditioning by specific experiences or associations. Other factors in sexual responsiveness include age, health, fatigue, nutritional state, and recency of drive fulfillment.

Freud believed that the bisexual anlage which can be observed in the human embryo is subsequently reflected in a universal bisexual tendency at a psychological level. The evidences of such psychic bisexuality, in this view, are seen in "latent homosexual" manifestations such as affectionate feelings for members of one's own sex and in patterns of behavior or interest that are usually considered to be characteristic of the opposite sex. Examples of these would be artistic or culinary interests or "passive" attitudes in males, or athletic or scientific interests or "aggressive" attitudes in females. The theory of psychic bisexuality is sometimes still defended on the basis that both "male" and "female" sex hormones can be found in the blood of both sexes. However, there is no evidence in humans that these hormones affect the direction of human sexuality or that they determine psychological "masculinity" or "femininity."

Psychological and behavioral patterns of masculinity or femininity constitute what is meant by "gender role," and are not necessarily synonymous with an individual's biological sex. Within every society, the process of acculturation that takes place during these critical years begins to condition the child's behavior so as to enable it to conform to the mores of its environment. The "polymorphous-perverse" sexual behavior of young children described by Freud constitutes the normal behavior of children before the acculturation processes of our society have funneled their sexual patterns into proper channels. From it we can infer what form the "natural sexuality" of man would probably take if no cultural taboos or restrictions at all existed in this sphere.

Freud believed that the sexual instinct followed a phylogenetically predestined evolutionary pathway. With the shift in psychoanalytic theory from an instinct-psychology to an ego-psychology, the unfolding of human sexuality may be viewed in a somewhat different light. The infant's sexual needs are seen as rather primitive and undifferentiated at birth. They find expression in the exercise of the child's relatively undeveloped ego functions —in sucking, in body movements, and in experiencing cutaneous and kinesthetic sensations. In the course of its adaptive development the child discovers sucking its thumb and handling its genitals as special sources of somatic pleasure, and if not discouraged, will utilize these as accessory sources of gratification. When the child discovers erogenous zones within himself that he can stimulate to give himself pleasure, he has achieved a significant step in ego mastery.

"Anal erogenicity" may well be the consequence of the emphasis on bowel-training which takes place during the second year, and which often becomes the locus for an emotionally laden transaction between child and mother. The struggle at this point is over the child's wish to move its bowels whenever and wherever it wishes. Thus the issue is not anality, but the broader one of the pleasure-principle versus the reality-principle—the basic battleground of every acculturation process.

The third year of life corresponds with the shift in cultural emphasis from bowel sphincter training to the development of urinary control. Simultaneously, the developing and intrusive ego of the child begins to perceive, and concern itself with, the shame-ridden issues of the anatomical differences between the sexes, where babies come from, and how much fun it is to play with the forbidden genitals. This is the period of the "polymorphous-perverse." That a latency period should occur in our culture after this kind of behavior should not come as a surprise. Sexual latency, when it occurs, is the result of repression in a culture that strongly indoctrinates the child with the conviction that is "polymorphous and perverse" sexual interests are dirty, shameful, and sinful.

The subsequent vicissitudes of adult sexuality also take many forms. Monogamy as a compulsory pattern of mateship, for example, occurs in only a minority of human societies. Strict monogamy, however, is not necessarily a mark of advanced civilization—some extremely primitive societies are strongly monogamous. Patterns of monogamy and polygamy are usually dependent on economic factors. Only the well-to-do usually are able to exercise this option, and single mateships, although not required, are the rule.

Rules governing premarital and extramarital relations also vary widely in different cultures. There are numerous societies in which extramarital sex is permitted and expected, and in which there is no censure of adultery. In societies that have no double standard in sexual matters and in which liaisons are freely permitted, women avail themselves of their opportunities as eagerly as men, a fact that casts serious doubts on the popular assumption that females are, by nature, less sexually assertive than males.

There is no way in which the concepts of normal and deviant sexual behavior can be divorced from the value systems of our society; and since such value systems are always in the process of evolution and change, we must be prepared to face the possibility that some patterns currently considered deviant may not always be so regarded. The fact that we now refer to sexual "deviations" rather than to "perversions" already represents an evolutionary change within our culture toward a more objective and scientific approach to these problems, in contrast to the highly moralistic and pejorative approach of the previous generation.

We are all products of our culture, and within the context of our current Western cultural value system there are indeed certain patterns that can be regarded as psychologically optimal and healthy. Although there is a wide spectrum of variations in human sexual motivation and behavior—most human beings, in the privacy of their bedrooms, in one way or another, and at one time or another, violate the rigid conventional standards of "proper" sexual behavior—there are nevertheless certain more widely deviant patterns of sexual behavior that in all likelihood would be considered abnormal in every society, i.e., practices that involve serious injury to one

of the participants in the sexual relationship.

One way of defining a large category of sexual practices that is considered deviant in our culture is that they involve the habitual and preferential use of nongenital outlets for sexual release. The emphasis is on the terms "habitual" and "preferential," since extragenital gratification may be a part of normal sexual foreplay, or of variations in sexual experiences between perfectly normal adults. When such variant activity becomes an habitual end in itself, it almost always in our culture means some disturbance in personality functioning.

Other major forms of sexual behavior that are defined as deviant in our society involve activity that is homosexual, or sexual activity with immature partners of either sex (pedophilia), animals (bestiality), dead people (necrophilia), or inanimate objects (fetishism). It is not uncommon for an individual to present simultaneous evidence of more than one of these manifestations. The deviant is in almost all instances an individual who has difficulty in achieving normal or satisfactory sexual relations with a mature partner of the opposite sex. Thus his deviant practices represent alternative ways of attempting to achieve sexual gratification; they are displacement phenomena and in many instances the displacement mechanism may operate in more than one direction.

The choice of deviant pattern is dependent on complex determinants which have to be ferreted out by a painstaking history and psychodynamic evaluation in each individual case. Disturbances in core family relationships, impairment in gender identity development, poor ego development, and specific conditioning experiences are all involved. Human sexual relationships are often complicated by unconscious motivations of fear, hate, or guilt, which leave their stamps on the quality of the sexual transactions between partners. In our culture, a key distinguishing factor between what is regarded as healthy or unhealthy sexual behavior is whether such behavior is motivated by feelings of love or whether it becomes a vehicle for the discharge of anxiety, hostility, or guilt.

A sharp line of distinction, however, cannot always be drawn between healthy and neurotic sexuality. Since patterns of sexual behavior always reflect personality patterns and problems, and since no one in our complex society is totally exempt from individual idiosyncracies, tensions, and anxieties, these will be manifested in sexual patterns no less than in other areas of interpersonal transactions. No human being is perfect, and nowhere is the humanity of man more transparent than in the varied patterns of his sexual relationships.

Sex Differences in Emotional and Cognitive Behavior in Mammals Including Man: Adaptive and Neural Bases

JEFFREY A. GRAY and ANTHONY W. H. BUFFERY

In this paper, we wish to consider the most likely selection pressures which have been at work in the production of sex differences in a variety of forms of nonsexual behavior. We shall also advance some hypotheses concerning the most likely neural organization of some of the forms of behavior involved. All of our hypotheses stem from a major premise that the most likely reason for the evolution of behavioral differences between the sexes is to be found in the specialized roles played by males and females in mammalian social organization.

There is a tendency in much psychological writing to erect a misleading dichotomy between "biological" and "social" influences on behavior. This dichotomy is plainly false: society is itself a biological phenomenon, and there is every reason to believe that the form taken by the social organization which is characteristic of a given species is as much the result of natural selection as is any other species-specific characteristic. The relation between sex differences and social organization may be used not only to throw light on the origin of sex differences, but also to pick out at least some of the features of human social organization which are of basically biological origin (i.e., the result of natural selection as expressed in the gene pool of the human species) rather than of more recent cultural origin.

If we find a sex difference which man shares with many of his mammalian relatives, if this sex difference is dependent on genetic control, and if this sex difference can plausibly be related to some feature of social organization which is also shared by man with other mammalian species, then the probability is high that both the human sex difference and this aspect of human society are of biological origin. If we find a sex difference which is of one kind in man and of another kind in other mammalian species, there is then a greater possibility that the human sex difference is of cultural origin and that, if it appears to be related to some aspect or other of human social organization, then this too is of cultural rather than biological origin. However, new evolutionary pressures may have come into play at the human or primate level which would result in a new biologically based social organization and/or sex difference.

We shall try to use what is known about mammalian social organization to throw light on the origin of sex differences in the kinds of emotional and cognitive behavior which we have singled out. Our argument is based on the following hypotheses: (1) The sex difference in aggressiveness arises out of the role played by the male in the establishment of dominance hierarchies; this role has remained essentially unchanged during mammalian evolution. (2) The sex differences in fearfulness arise out of the role played by the female in the establishment of dominance hierarchies; this role has changed as between primates and nonprimates; (3) The sex difference in spatial ability is in part connected with the male's role in dominance interactions and in part (at the primate

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level) with his role in the protection of the group from other conspecific groups and from predators. (4) The sex difference in linguistic ability is due to the existence of the mother-infant pair, it being essential that the adult in whose company the growing infant spends most of its time should expose it to an adequate linguistic environment. (5) Neurally, there is an overlap between the structures subserving the verbal control of behavior and those involved in submissive and fearful behavior; this has the consequence that, in man, the sex difference in fearfulness is connected to the sex difference in verbal abilities. (6) Each of the points, 1–5, listed above, are themselves a consequence of the basic division between the roles played by males and females in reproductive behavior.

Adaptive Significance of Sex Differences in Emotional Behavior

The sex difference in aggressiveness, at least in the rat, is confined to intraspecific aggression, since there are no sex differences in mouse killing by the rat, an activity which appears to form part of food-seeking behavior. This suggests that the sex difference in aggressiveness arises out of the nature of mammalian social organization and the specialized roles played within this organization by the two sexes. As far as fearfulness is concerned, one of the most important classes of stimuli eliciting fear in mammals consists of the signals emitted by conspecifics during social encounters. It is therefore likely that the sex difference in fearfulness, too, is linked to the nature of mammalian social organization. Thus we should be looking for some feature of the specialized roles of the sexes in social behavior which is the same in rodents, nonhuman primates and man (to account for the greater male aggressiveness which is shared by all these mammalian species); and for a second feature of these roles which is different in rodents, on the one hand, and nonhuman primates and man, on the other (to account for the greater male fearfulness in the first of these orders and the greater female fearfulness in the latter).

It may be suggested that the first of these features consists in the fact that, in both rodents and primates, males are more likely than females to display dominance behavior. The situation in the human species is not different in this respect. The second feature of mammalian social organization consists in the fact that, in rodents, males are more likely than females to display submissive behavior, whereas in primates it is the other way round. In rats and mice, the social hierarchy is almost exclusively the business of males; females take almost no part in dominance interactions either with males or with one another. In primates, on the other hand, the social hierarchy is "sexually interdigitated", i.e. males and females form part of the same dominance hierarchy, with males on average being dominant over females. Our species has a sexually interdigitated status hierarchy, with males on average possessing higher rank.

We see, then, that the social organization among rodents demands that males possess to a greater degree than females the mechanisms for both dominance and submissive behavior; hence greater male aggressiveness and fearfulness. If this is so, other species which have the primate type of social organization should show the primate direction of the sex difference in fearfulness.

Adaptive Significance of Sex Differences in Cognitive Behavior

Both in the laboratory rat and in

man there is clear evidence that males are superior to females at the performance of tasks which involve the perception and use of spatial relationships or locomotion in a spatially complex environment. Among rodents, this male superiority might be connected with the fact that, in the wild, this sex has a larger home range than does the female. The exploratory activity which is reflected in measurements of the home range clearly involves the exercise of spatial ability. The superior male spatial ability found in laboratory studies of the rat may well be linked to the same differentiation in the roles of the sexes in agonistic and dominance behavior as has led to the sex difference in aggressiveness.

There are few relevant data on sex differences in spatial ability in non-human primates, but some observations on free-living chimpanzees give rise to the same conclusions as the data on rodents. As in the rat, part of the reason for the male's superior spatial ability may be his greater concern with dominance encounters. The male explores more than the female; this may have the same significance as the rodent sex difference in home range size. A further reason may be the male's role as protector of the group, both against predators and against other groups of conspecifics.

For obvious reasons, it is necessary, in considering the adaptive significance of the sex difference in linguistic abilities, to confine our attention to man. Judging from the way language is learned among contemporary human beings, it is necessary that the growing child be exposed to a linguistic environment fairly early in life, probably before puberty. Although there is a tendency for males to take some part in parental care among primate species, the growing primate infant spends most of its time in the company of its mother. Thus, for language to evolve among primates, it must have been necessary for females to be particularly adept at the newly developing linguistic skills so that they would be likely to use them in the presence of their offspring. It seems probable that this is the selection pressure which resulted in the existing human sex difference in verbal ability.

Relation of Sex Differences in Emotional and Verbal Behavior

Our discussion so far has proceeded on the assumptions (a) that the discrepancy between the direction taken by the sex difference in fearfulness among rodents (males more fearful) and that taken by this sex difference in man (females more fearful) is a rodent/primate discrepancy rather than a rodent/man discrepancy, and (b) that the human sex differences in emotional and cognitive behavior are independent of each other.

On the hypothesis that the discrepancy in the sign of the sex differences in fearfulness is a rodent/primate one, such an inquiry is worth pursuing, since the most plausible view is that there have been selection pressures working to produce more fearful females both at the primate level generally and at the human level in particular. Assumption (b) may also be false. There are some grounds for considering that the human sex differences in emotional and verbal behavior are linked to each other. Furthermore, the additional selection pressure which has perhaps been at work in man to produce higher fearfulness in females is connected with the pressure for superior verbal ability in this sex, and this connection has involved an overlap in the neural structures which mediate certain kinds of fearful behavior and certain aspects of verbal behavior.

Neural Bases of Sex Differences in Emotional and Verbal Behavior

If we assume a reasonable continuity in the neural structures mediating the major forms of emotional behavior in the different species of mammals, the fact that the sex difference in aggressiveness takes the same form in rodents and primates, while the sex difference in fearfulness takes different forms, suggests that the neural structures responsible for aggressive and fearful behavior, respectively, are separate. There appear to be in mammals two basic systems of emotional behavior involved in reactions to aversive stimuli: a system mediating fight/flight behavior as an unconditioned response to aversive stimuli and a system mediating passive avoidance behavior as a response to signals (conditioned stimuli) of impending aversive stimuli. It is proposed that the former is responsible for the aggressive and dominant behavior, and the latter—the "behavioral inhibition" system—for the fearful and submissive behavior.

Women are more prone than men to phobias and reactive depression; they also score more highly than men on personality tests measuring neuroticism and introversion, as well as on tests measuring the personality trait of susceptibility to anxiety. The hypothesis proposed here is that these human sex differences arise because women possess a more highly reactive behavioral inhibition system. This system has the following major functions: in response to novel stimuli or to conditioned stimuli which, in the organism's past experience, have been followed by unconditioned aversive stimuli or by frustrative nonreward, it executes (a) an inhibition of ongoing behavior, (b) a selective inhibition of sensory input, (c) an increment in the general level of arousal, and (d) a negative feedback control of this increment in arousal

The chief source of the evidence comes from the known effects in man of the operation of frontal leucotomy, which severs the connections of those structures in the frontal cortex which serve as the highest cortical control for the behavioral inhibition system from the rest of this system On the hypothesis that it is this system which is involved in the creation of neurotic introvert disorders, frontal leucotomy has been shown to reduce the severity of phobic symptoms, reactive depression, anxiety and obsessive-compulsive symptoms. Another way of searching for evidence is to seek for sex differences in nonhuman primates in tasks which (a) are believed to involve these neural structures and (b) appear to involve the kind of function which has been attributed to the behavioral inhibition system. The data relevant to this issue fall into the expected pattern.

Given the role of the frontal cortex in the control of delayed response, and the likelihood that this role is in part one of behavioral inhibition, and perhaps, in particular, one of selective inhibition of sensory input, we would expect females, in whom the behavioral inhibition system is more effective than it is in males, to be superior to males on delayed response tasks. This is the result which has been found in four separate studies with rhesus monkeys. Other studies specifically implicate a superior ability to concentrate attention on the relevant cue as the source of the female's better performance on this task.

The frontal cortex is also involved in the control of certain aspects of verbal behavior, another area in which, as we have seen, sex differences exist. This evidence stems from the conclusion from a study of patients with

frontal lesions that the frontal cortex in man performs the function of regulating attention and motor behavior in response to verbal instructions emanating either from other individuals or from the subject himself. The verbal regulation of behavior usually has an inhibitory significance: that is, the disturbances of behavior which generally arise when there is damage to the frontal cortex take the form that the patient is unable to prevent himself, whether by self-instruction, or in response to instructions from others, from carrying out inappropriate or maladaptive acts. Thus there would appear to be a simple relationship between the special verbal functions which the frontal lobes have acquired in man and the kinds of function performed by these structures in other mammals: in both cases, an inhibitory or passive avoidance function is involved, and in man this function has come to be exercised under the control of verbal stimuli.

Adaptive Significance of Sex Difference in Fearfulness Reconsidered

If we reconsider the adaptive significance of the human sex difference in fearfulness, there are two plausible accounts of the evolution of this characteristic. On the first hypothesis, female primates were (as the result of the form taken by primate social organization) already in possession of a more highly reactive behavioral inhibition system. With the evolution of language, an additional selection pressure (the need for females to be particularly good at verbal behavior) was added and this continued to promote a stronger behavioral inhibition system in the human female, still involving the same neural structures, but now taking on the additional function of the verbal regulation of behavior.

On the second hypothesis, the evolution of language was the first selection pressure to take effect, primates not yet showing the human sex difference in fearfulness. As language evolved, the pressure for females to be particularly good at verbal behavior resulted in an enhancement, in females, of the activity of the neural structures which, in primates, had been concerned with the execution of behavioral inhibition in general and which, in humans, was also concerned with the verbal regulation of behavior. Thus the human sex difference in fearfulness is a secondary consequence of the sex difference in verbal behavior. The scanty data at hand suggest that the former hypothesis is more likely to be correct.

General Constraints Imposed by Division of Reproductive Labor

A complete account of the evolutionary factors which have resulted in the sex differences discussed in this paper would have to explain (a) the greater concern of males with dominance behavior; (b) the trend toward increasing complexity of social organization among primates; and (c) the existence of the mother-infant pair. Of these, the second is not itself of direct significance for the sex difference in fearfulness: if our argument is correct, the greater female fearfulness which is found among primates is due to the fact that males were better equipped for engaging successfully in dominance behavior. On this view, the increased social complexity which developed among primates was the critical factor which altered the expression of sex differences in emotional behavior from the picture prevailing among rodents, but the existence of such sex differences reflects the same basic factors, acting differentially with respect to the sexes, in both or-

ders. There is every reason to suppose that the two remaining factors both reflect the same fundamental specialization of the roles of the two sexes in reproductive behavior.

A wide range of forms of behavior have developed for the purpose of aiding in the homeostatic regulation of population density. The long-term survival of higher animal species is critically dependent on the evolution of physiological and behavioral adaptations which restrict reproductive behavior to a level well below what the available nutritional resources of the habitat at any particular time would permit. Among the behavioral adaptations which form part of these "intrinsic" mechanisms of population control are those involved in the struggle for social dominance and/or territory. The density of the population at any one place is limited, and the dispersion of the species is at the same time facilitated.

Much evidence shows that the male is usually the "epideictic" sex, that is, the sex charged predominantly with the tasks of (a) signalling the current population density to conspecifics, (b) receiving such signals from conspecifics and (c) adjusting reproductive activity accordingly, restricting this when population density is high. Females undertake a much larger burden in reproductive behavior than males. In contrast to the male's spermatozoa, mobile, light and easily produced, the female's contribution to reproduction consists of ova loaded with valuable nutrients, and consequently far less expandable and greatly restricted in number. If she were also to undertake the major role in epideictic behavior, her task would become excessively burdensome. In those cases where the female does in fact display epideictic behavior, the male tends to undertake a greater role in caring for the young than is usual, indicating that an equitable sharing of the labor of parental and epideictic functions between the sexes has some adaptive value. The mother-family is mandatory since the young derive their nourishment from the female. Thus, in mammals, the only sharing possible is for females to undertake primary responsibility for parental behavior and for males to undertake primary responsibility for epideictic behavior.

The greater concern of the male with dominance interactions, which results in most of the sex differences discussed, is a consequence of the fundamental difference between the reproductive functions of the two sexes, a difference which is virtually universal among animal species, but which is to some extent particularly marked among mammals. And the one sex difference reviewed here—that in verbal behavior—which does not appear to be linked to dominance behavior is a direct consequence of the two sexes, especially as this is expressed in the mammalian mother-infant pair. Thus, we would maintain, the sex differences in emotional and cognitive behavior among mammalian species which we have considered are all remote but necessary consequences of the same overriding fact: the division of labor between the sexes in reproductive behavior. Conversely, those features of human social organization which appear both to be linked with these sex differences and to be common to other mammalian species are of essentially biological origin, that is to say, they are specified in the gene pool of our species.

Electroencephalographic (EEG), Evoked Potential, and Direct Current (DC) Responses with Unilateral Electroconvulsive Treatment (ECT)

IVER F. SMALL and JOYCE G. SMALL

The therapeutic value of induced convulsions has been known for centuries, but the mechanisms of their beneficial and other effects are still unknown. We have been interested in exploring how modifications of convulsive treatment affect therapeutic outcome, memory, and cognitive functions, and have investigated different methods of induction of therapeutically intended seizures. Recently we have focused attention on unilateral electroconvulsive treatment (ECT), as it is known to produce less amnesia and confusion than bilateral electroconvulsive treatment, despite the fact that both kinds of stimulation produce grand mal seizures with comparable clinical results.

We reasoned that neurophysiological and psychological evaluations performed shortly after the seizures might be more revealing than were earlier studies in which such procedures were done in interictal periods 24 to 48 hours after ECT. Our identification of ictal differences corresponding to the side of electrical stimulation supported this proposition. Later we included recordings of direct current (DC) potential activity as well as EEG and evoked responses, inspired mostly by recent interest in the contingent negative variation (CNV) phenomenon and its psychological and behavioral associations, and our own recent findings of psychiatric relationships of the CNV.

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The subjects were 20 psychiatric patients who received unilateral convulsive treatment either on the right or the left side of the head using an experimental design in which the EEG, evoked response studies, and psychological testing were performed as soon after seizures as possible. Referral for ECT, generally for depressive manifestations, and the decision of when to terminate treatment was decided by the clinical treatment services. However, the assignment to ECT on the left or the right side of the head was made on a random, double-blind basis, governed by our research design.

All subjects received extensive pretreatment evaluations including standard diagnostic interviews and a variety of psychiatric ratings. Prolonged pretreatment EEG recordings were obtained during waking, activation procedures, and sleep. In addition patients were exposed to repeated auditory and visual stimulation for response averaging with scalp electrode placements at the midline and in homologous areas on the left and the right side of the head. We added recordings of DC activity during sensory stimulation. DC activity was recorded while patients were exposed to repeated single flashes or clicks and to flashes followed ½ second later by clicks, under conditions requiring no motor response as well as when the patient was required to push a button after stimulation. Order of experimental sequence was randomized. Five averages of 10 trials for each of the six experimental conditions were combined to obtain individual data. These were

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then pooled to construct average group profiles of amplitudes of vertex to mastoid DC activity. A neuropsychological battery was also administered, consisting of a modified series of tests which have been shown to discriminate the location and extent of lesions on the right or the left hemispheres in studies of neurological and neurosurgical patients.

Unilateral convulsive treatment on the right or the left side of the head was administered three times weekly with intramuscular atropine and intravenous methohexitol sodium and succinylcholine chloride. Seizures were induced with a Medcraft model 5A1 Stimulator which delivers a conventional glissando modified sine wave alternating electrical current (AC) with parameters of the stimulus adjusted for each individual at just above threshold levels. The stimulating electrodes were placed anteriorly and parallel to the Rolandic fissure. In many cases continuous EEG and other physiological variables were recorded during and for a short time after the seizures. The clinical, EEG, evoked and slow potential recordings, and neuropsychological examinations were repeated after the fifth convulsive treatment, again 3 to 5 days after termination of ECT, and finally 60 to 90 days later. The design of the study called for alternate forms of the Wechsler Memory Scale to be administered right after recovery from the fifth and, when possible, the 15th seizure. The EEG, evoked response, and DC recordings were done 1 to 3 hours after ECT and the evaluations were conducted approximately 4 hours after treatment. The clinical evaluations were done on nontreatment days. An average of 11.4 treatments were given to the patients who received right-sided ECT and 12.9 to the left-sided group. The treatment groups were generally similar with the exception of a few more schizophrenic patients in the group that received ECT on the dominant side.

Ictal and interictal EEG findings confirmed the observations made in our previous study. Again recording of evoked potentials in homologous areas on the right and left side of the head revealed no important differences between shocked and nonshocked hemispheres. The neuropsychological battery also failed to dscriminate whether patients had received stimulation on the left or right side of the head.

Clinically, the outcome was similar for patients treated on the right or the left side of the head with minimal memory loss or confusion in either group. There was significantly more impairment of performance on one subtest of the Wechsler Memory Scale, a word association test, in patients treated on the dominant side of the head. This occurred after the fifth ECT and on termination of ECT but did not persist on followup retesting.

Recording of slow potential activity was introduced in this study. There were highly significant differences in DC responses after five ECT's which mostly returned to pretreatment levels by the time of followup recordings.

Thus this study has largely supported previous observations and has provided new indications that ictal variables have important influences on neurophysiological and psychological changes with ECT.

Social Class and Race as Mediator Variables in Neurotic Symptomatology

Leonard R. Derogatis, Lino Covi, Ronald S. Lipman, David M. Davis, and Karl Rickels

Researchers in the behavioral sciences have shown a sustained interest in the causal and effective relationships between *social class* and various aspects of mental health and mental disorder. Among the more salient findings, social class has been observed to be a significant mediator regarding incidence and prevalence of mental disorder, attitudes toward mental illness, treatment expectancies of patients, type of treatment received, and relevance and success of treatment programs.

One potentially significant relationship which has received little study is that of social class and *symptomatology.* Many key decisions, such as diagnosis, case disposition, type of treatment, and prognosis, are ultimately determined in large measure by initial impressions of a symptomatic constellation and subsequent modifications in it. To the extent that the symptom picture is modified by social class and race and these factors are omitted from consideration, errors of unknown magnitude are made in relational propositions concerning symptoms and higher-order conceptualizations in psychopathology.

In our study of the potential interactive effects of social class and race on the psychopathological symptom configuration, that configuration was relatively circumscribed, representing the symptom dimensions associated specifically with *anxious neurotic psychopathology.*

The basic measuring instrument used was a 58-item version of the symptom Distress Checklist (SCL). The items of the SCL focus on the more conventional neurotic symptoms as reported by neurotic patients. All items are rated on a 4-point scale of distress from "not at all" at one pole to "extremely" at the upper limit. Here the SCL will reflect responses of patients and of doctors in reference to patients. Factor analytic studies on doctor ratings isolated five basic factors: I. *Somatization,* II. *Obsessive-Compulsive,* III. *Irascibility,* IV. *Depression,* and V. *Anxiety.* These factors were used as criterion variables in our research.

The subjects were 1,071 anxious, neurotic outpatients involved in four clinical drug trials between 1962 and 1965. Three psychiatric clinics were involved in the studies, and their staffs collected data on the patients. All patients were new admissions presenting psychoneurotic symptoms involving manifest anxiety. Patients who exhibited symptoms of overt psychosis, organic impairment, alcoholism, sociopathic personality disturbance, or psychoneurotic depressive reaction with an absence of manifest anxiety were excluded from the study. Ages of the patients ranged from 16 to 81. Approximately 35 percent completed high school or went further in their education, and women outnumbered men by about 2.7 to 1.

The protocol used in obtaining SCL ratings was consistent throughout the four drug trials and among the three participating clinics. A self-rating was

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made by the patient at the time of his first visit, before any treatment had begun. Patients were instructed to rate themselves on each of the SCL items with reference to "How you have felt during the past 7 days including today." Demographic data such as age, sex, education, occupation, race, and marital status were also obtained for each patient.

The indicator used as a measure of social status was the Hollingshead Two Factor Index of Social Class, a composite of the two indices of occupation and level of education of the head of household. Four of the Hollingshead social class categories were used in our study because the number of patients from class I was limited, particularly in our sample of Negro patients. In evolving factor scores for the patients on each of the factors, a "unit-weight" scoring method was used. This consists of simply multiplying the score on each item subsumed by a particular factor by one, rather than by its factor loading, and summing across appropriate items.

The data analyses may be most clearly conceived as a series of two-way analyses of variance, with social class and race as the two main-effect terms. Since there were four levels of social class and two levels of race, a set of 4 X 2 designs was constructed, one for each of the five SCL symptom dimensions. The actual computational model used was a least-squares regression approach based on the general linear model.

The results of the study confirm the general hypothesis that social class and race act as mediator variables with regard to level of neurotic symptomatology. Significant effects due to these variables were observed on four of the five symptom dimensions included in the study. Although these effects are reliable, and in some cases statistically highly significant, they are not of such a magnitude as to allow accurate clinical prediction in the individual case.

While the specific nature of the effects of social status and race were not totally coincident across all of the symptom dimensions, consistent trends were apparent. There was a marked inverse relationship between social class and symptom levels on somatization. This inverse association was equally descriptive of Negro and white patients alike, suggesting that race does not differentially influence the relationship. One probable determinant of this result is the notable difference in the perceptions and interpretations of psychological disorder among persons in the various social strata. Another influence may be the greater prevalence of actual physical illness reported among the lower-status groups.

Results on the depression dimension were similar to those observed for somatization: a significant reverse relationship between level of depressive symptomatology and social status position. For both Negro and white patients, distress levels on this measure increased in the lower socioeconomic groups.

Analysis of the irascibility dimension showed a significant main effect associated with race; white patients manifested significantly higher symptom levels on this factor than did Negroes. This measure is a reflection of certain indicators of manifest hostility, as well as of a critical attitude toward others.

The observation that persons of lower social status hold views of psychological disorder quite different from those of persons in the higher social classes is well documented. There is evidence that in the lower socioeconomic strata mental illness tends to be equated with only the more se-

vere forms of psychological disorder. Most outpatient treatment programs and facilities are not directed toward the needs and expectancies of lower-class persons, but rather have a strong middle-class orientation. These influences tend to act in a convergent manner and are reflected in the fact that a significantly higher percentage of lower-status persons arrive at the clinic as a result of referrals from legal or social agencies than do so as a result of self-referral or physician referral.

Given these factors, it would not be unexpected to find higher levels of distress in the presenting symptoms of individuals with lower socioeconomic backgrounds. Considering the generally negative attitude of the lower classes toward psychiatric treatment, and their fear and lack of understanding regarding mental illness, one would expect higher levels of distress to be necessary to overcome their resistance toward initiating treatment. This expectancy is further reinforced by the realization that in most cases distress must be of such a magnitude as to come to the attention of some external agency, before contact is made.

In higher-status groups, individuals are often encouraged by family and friends to seek professional help for "personal" problems. The compatibility of their backgrounds and value systems with those of the psychiatrist make for a more positive orientation as well. And among those for whom the cost is not a prohibitive factor, "therapy" has a certain amount of social prestige value. All of these factors militate for less resistance toward initiating treatment among high-status individuals, and ultimately for lower presenting levels of symptomatic distress.

Our white patients showed a decided trend toward higher distress levels in the lower-status groups on all five of the symptom dimensions studied. Although similar trends are apparent on only two of the dimensions among Negro patients, if both groups are considered together an inverse relationship between symptom levels and social class was observed in seven out of ten possible instances.

Our research indicated that neurotic symptom levels vary widely as a function of social class and to some extent as a function of race. For the investigator involved in research on comparative treatment (e.g., drug studies), where the efficacy criterion is some degree of change in neurotic symptom levels, it is important to keep these results in mind when selecting a patient sample. Otherwise, the patients under study may manifest an insufficient degree of the "target" characteristic(s). If that occurs, the validity of the assessment is placed in serious question, since even the best treatment cannot be shown to be effective in modifying symptoms which are only marginally present in the sample.

Our findings also have implications for clinical assessment. These results strongly suggest that interpretations of neurotic symptomatology which are based solely on general etiologic mechanisms will probably be inaccurate, since they fail to recognize the conditional relationship between symptom configuration and such factors as the social status of the patient. Awareness and assimilation of such information into the evaluative process allow the clinician to interpret symptomatic behavior more realistically, with a relevant reference group in mind.

Escape from S—

H. S. Terrace

The basic datum of any experiment on discrimination learning is differential responding to two or more discriminative stimuli. In the simplest case, responding to one stimulus (S +) is reinforced while responding to another stimulus (S—) is not reinforced. As a result, responding to S+ occurs at a higher frequency than responding to S—. Evidence has been collected which indicated that training a discrimination produces consequences other than establishing differential responding to two or more discriminative stimuli. The experiments described in this paper were concerned with demonstrating that one such consequence of discrimination training is that S— may function as an aversive stimulus. Direct proof that S— is an aversive stimulus requires the demonstration that S— affects behavior in a manner similar to the way in which a primary negative reinforcer affects behavior.

The strategy that must be followed in demonstrating that S— functions as an aversive stimulus in experiments on discrimination learning differs somewhat from the strategy which has been followed in experimens in which primary negative reinforcers are used. The most important difference stems from the necessity of showing that whatever behavior is strengthened by removing S— cannot increase the frequency of positive reinforcement. If the response that removes S— also increases the frequency of positive reinforcement, one could not claim unequivocally that the removal of S— maintained the response in question.

The present experiments are an extension of an earlier study which sought to show that pigeons can be trained to escape from S— and that the presumed escape response was not attributable either to an increase in frustration-produced activity or to the reinforcing properties of stimulus change per se. These experiments also sought to examine (a) intermittent reinforcement of the escape from response, (b) extinction of this response, and (c) the tendency to escape from S— of those subjects who learned to discriminate without errors.

Twenty experimentally naive White Carneaux pigeons were maintained at 80 percent of their free-feeding body weight throughout the experiment. They were trained on a successive vertical-horizontal discrimination in a standard operant conditioning chamber. Two response keys, whose centers were 8.84 cm apart, were mounted on a panel 12.2 cm above the opening to the food magazine. The stimuli presented on each key were projected from separate Inline Digital Display Units. S+ (a white vertical line, 1 cm wide, on a black background) were projected onto the rear of the right key. The left key, whose function will be described below, was transilluminated with diffuse white light throughout the experiment. The only other source of illumination in the experimental chamber was a houselight mounted on the upper right-hand corner of the response panel.

Three of the groups (I–III) learned the vertical-horizontal discrimination with errors. A fourth group (IV) was trained to acquire the same discrimination without errors. S+ and S— were alternated successively on the right key in an irregular

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series in which the same stimulus was repeated a maximum of three times. The durations of S+ and S— were always 1 min unless S— was prolonged by a correction procedure which delayed the termination of each S— until 30 sec without a response to S— elapsed. This minimized the possibility that a response to S— could not be reinforced secondarily by the appearance of S+. Responding to S+ was reinforced on a 1-min variable interval schedule. Each session was terminated following the 25th reinforcement. Reinforcement was a 3.5 sec presentation of the raised food hopper. During reinforcement, the houselights were turned off and two 5-W bulbs, mounted directly over the food hopper, were turned on. The total duration of S+ during each session varied between 23–26 min, depending on when the 25th reinforcement was earned in S+. Likewise, total duration of S— could vary between 23–25 min if no responding to S— occurred. Each subject was given 20 discrimination sessions which were conducted on successive days.

The left key was made available, during the first session, immediately after the key peck to the vertical line (presented on the right key) was conditioned. The left key remained available throughout the course of the experiment, both when S+ and when S— were presented. For Groups I and IV, a response to the left key turned off S— for 5 sec. During this time the houselight and the light on the left key remained on. Thus, following a response to the left key, S— was removed and the subject was confronted with a visble key on which no stimulus was presented. Technically speaking, this blank key is a second S—; however the blank key occasioned virtually no responding. If the 5-sec escape period would have run beyond the programed termination of S—, the escape period was shortened accordingly.

Groups II and III served as "displacement" and "stimulus change" control groups, respectively. For Group II responding to the second key had no effect. For Group III, responding to the left key turned off the white light behind the *left* key for 5 sec. Responding to the left key, however, had no effect on the stimulus presented on the right key.

During discrimination training sessions 16–20, the contingency for responding to the left key was the same for each group: responding to the left key had no effect. Thus all of the groups were given the same training during these five sessions that Group II received during sessions 1–15. The purpose of this change of procedure was to see whether any response to the left key that may have been strengthened by either the escape from S— contingency, or by the stimulus change contingency, would be weakened by an extinction paradigm. During sessions 16–20 responding to the right key was reinforced differentially as before.

Each of the subjects of Groups I–III responded at least 1134 times to S— during the first 15 discrimination sessions. The ranges of the number of errors made by the subjects of Groups I–III were 1,816–3,924, 1,134–2,717, and 2,834–3,561, respectively. Responding to S— was confined mainly to the first three discrimination sessions. None of the subjects of Groups I–III responded to S— more than 29 times following the third discrimination session.

The range of the number of errors made by the subjects of Group IV was 3–18. Since previous experiments have shown that performances following zero and a small number of errors are indistinguishable, Group IV will be

referred to as an errorless discrimination learning group.

During the first discrimination training session, the subjects of Group I responded to the left key an average of 91 times. The range of responses to the left key was 14–268. Throughout the course of discrimination training, the average number of escape responses steadily declined until it reached a minimum value of 8 responses during the 13th discrimination training session. Escape responding occurred mainly during the first third of each S— presentation.

The effect of the escape from S— contingency on those subjects who learned the discrimination with errors was also demonstrated by a rapid decline of escape responding during the last five extinction sessions. Even though the level of escape responding was low at the end of discrimination training, the elimination of the escape contingency produced an abrupt decrease in the number of escape responses.

None of the subjects of the other groups (II, III, and IV) responded very much to the left key. In no instance did the maximum amount of responding to left key of these groups overlap with the minimum amount of responding to the left key of Group I.

Responding to the left key, while S+ was presented on the right key, occurred at a uniformly low level in each of the four experimental groups. The range of responding to the left key, during S+, of all subjects was 0–33.

Experiment I demonstrated that a pigeon will learn a new response whose sole consequence is the removal of S—. Escape from S—, however, was observed only following discrimination learning with errors. It was also shown that responding to the left key could be attributed neither to an increase in activity resulting from nonreinforced responding to S—, nor to a tendency to change the value of a discriminative stimulus per se.

There remains, however, the question of just why the subjects of Group I learned the escape response. While it is tempting to attribute the occurrence of escape responses to the occurrence of errors, one feature of Experiment I does not allow this. A factor which might influence the initial occurrence and the subsequent rate of escape responding is the correction procedure. Because of the different duration of S— in Groups I and IV, one might ask whether S— is aversive following discrimination learning with errors not only because of the occurrence of errors but also because the duration of S— has been increased by responses to S—. Yet an argument against this interpretation is that escape responding persisted after the third discrimination session.

It might also be argued that the removal of S— was not only reinforcing because S— was aversive, but also because it elminated the opportunity to respond to S—; this in turn reduced the duration of S—. According to this analysis one factor that might be responsible for the occurrence of escape responding is that these responses indirectly minimized the duration of S—.

Since both of the above interpretations derive from possible consequences of the correction procedure, a second experiment was performed in which the correction procedure was not used.

The purpose of Experiment II was to determine whether escape from S— would occur following discrimination training in which the duration of each presentation of S— was not affected by the occurrence of errors. Experiment II also sought to determine whether the level of escape responding

could be increased by the introduction of a ratio requirement for responses to the left key.

Subjects were four experimentally naive pigeons maintained at 80 percent of their free-feeding body weight and trained on the same apparatus used in Experiment I. Following key-pecking training, each subject was given 21 days of VI 1-min training during which the vertical white line was projected on the response key. Nondifferential training was followed by 12 sessions of discrimination training. S+ and S— were the same stimuli used in Experiment I (vertical and horizontal lines, respectively). The correction procedure that was in effect in Experiment I was not used in Experiment II, so responding to S— had no effect on its duration. The duration of each presentation of S— was 1 minute.

The contingency associated with the left key was initially the same as that in effect for Groups I and IV of Experiment I. Following the initial occurrence of escape responding, however, the number of responses required to turn off S— was gradually increased. For two subjects a fixed ratio schedule, which required two responses to turn off S—, was in effect by the end of the first discrimination session. For a third subject escape responding was maintained on a fixed ratio (FR3) schedule by the end of the first discrimination session. In the case of the fourth subject, however, escape responding appeared to extinguish when the ratio value was raised to two, so the schedule in effect at the end of the first discrimination session was continuous reinforcement. During the next few sessions the value of the ratio requirement for escape was gradually raised, and by the end of the fourth session all subjects were required to respond five times to the left key in order to escape from S—. In all instances, the duration of escape from S— was 5 seconds. Following each 1-min S— interval, the ratio counter was reset to zero. Thus, any ratio that was not completed during a given S— was not carried over the next S—. The FR schedule for escape responding was maintained through the end of discrimination training. During discrimination sessions 8–12, however, responding to the left key had no effect.

Aside from the omission of the correction procedure, the introduction of a ratio requirement for responding to the left key and the different amounts of discrimination training prior to the extinction of the escape from S— response, the procedure followed in Experiment II was identical to the procedure followed for Group I of Experiment I.

Omission of the correction procedure neither retarded the acquisition of escape responding nor had an adverse effect on its subsequent maintenance. Likewise, the increase in the number of responses to the left key needed to turn off S— did not affect adversely the maintenance of the escape from S— response.

The nature of the functions showing the number of escape responses was the same for each bird. All of these functions increased as the value of the ratio requirement was increased. In each case, however, the point at which the maximum frequency of escape responding occurred followed the first complete session during which the FR5 requirement was in effect. It should also be noted that in each case the number of escape responses continued to increase after responding to S— had leveled off at a steady low rate. Following the point at which the highest frequency of escape responding was reached, the frequency of escape responding dropped down to

a value above its original frequency at the start of discrimination training.

Escape responding reduced its programed duration, but it did not eliminate S— completely. In 27 out of 28 instances, S— was presented for more than one-half of its programed duration.

The removal of the escape contingency resulted in a decrease in frequency of each subject's responses to the left key. By the end of the fifth extinction session, none of the subjects was responding to the left key.

The distribution of escape responses within individual S— presentations was similar to that obtained in Experiment I. In Experiment II the distributions were not as positively skewed as in Experiment I, but there was a greater tendency to respond following the onset of S— than toward the end of each S— interval.

As in Experiment I, responding to the left key during presentations of S+ was minimal. The range of responding to the left key during S— of all subjects during 21 baseline sessions and during the 12 discrimination sessions was 0–11. Behavioral contrast effects similar to those observed in Experiment I (Groups I–III) were observed in each subject's S+ and S— rate functions.

These experiments have demonstrated that S— can function as a secondary negative reinforcer following discrimination training with errors. They also showed that the occurrence of nonreinforced responding to S— is the crucial factor in rendering S— aversive. A major theoretical implication of this finding is that a secondary negative reinforcer can be established without recourse to a primary negative reinforcer. Thus, we are able to equate functionally the operation of presenting a primary negative reinforcer with the operation of withholding a primary positive reinforcer. This is possible because the effect of pairing a stimulus with nonreinforced responding was shown to be similar to the effect of either presenting a negative reinforcer or pairing a stimulus with a primary negative reinforcer. All of these situations are conducive to the establishment and maintenance of escape behavior. It must be noted that the aversiveness of S— does not appear to be as strong or as permanent as the aversiveness of a primary negative reinforcer.

The Relevance of Economic Theory and Technology to Token Reinforcement Systems

R. C. WINKLER

In 1965 there was published a report of a ward program for chronic psychotic patients in a psychiatric hospital. The program was derived from principles of reinforcement and involved patients earning tokens for desirable behavior and exchanging those tokens for desired goods and activities. The tokens were conceptualized as conditioned reinforcers and the purchasable items as primary reinforcers.

Token systems now have been applied with chronic psychiatric patients, hospitalized mental defectives, adolescents in institutions, emotionally destrubed children, stutterers, and school children. In each of these areas, the token system was proved to be valuable in modifying behavior.

Typically, token systems such as these are conceptualized as environments which systematically program explicit reinforcements. Token systems might also be regarded as closed economies, where tokens are currency, amounts of reinforcement are wages, and exchanges rates are prices. The aim of this report is to explore some of the ramifications of this view and to suggest important correspondences between larger economies and token systems.

In both larger economies and in token systems, people exchange currency for valued items. They spend and they consume. If token systems can be profitably regarded as economies, then exchange or spending patterns in the token systems might be predictable from economic studies of spending and consumption in larger economies.

Economists have shown that families with more income spend more, and except for extreme incomes, spending typically falls within 10 percent of income. At extremely low incomes, spending tends to exceed income while at extremely high incomes, spending falls well below income. The high proportion of spent income at most income levels is of crucial importance to economic theory of consumer behavior, and a similar relationship between income and total expenditure might be predicted to occur in token systems.

In one token system reported in 1970 extensive records were kept, so that patients and all tokens spent by patients could be calculated daily. Tokens given to the patients were regarded as patient income and tokens spent as patient expenditure. Total patient spending plotted against total patient income on the same day, over two separate 14-day periods, showed that spending increases with income, that spending falls within 10 percent of income over most of the income range, that at extremely low incomes, spending exceeds income and at extremely high incomes, spending falls below income. Thus, income-spending relationships in the larger economy and in token systems are markedly similar.

The analysis of expenditure on different categories of consumer items was pioneered by Ernst Engel in the nineteenth century; Engel's law asserts that as income increases, the proportion of total expenditure spent on ur-

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gent needs decreases, whereas that spent on semi-luxuries and luxuries increases. This law is illustrated in a 1951 U.S.A. survey of showing how expenditure on food eaten at home and meals eaten out is related to income levels. Absolute consumption of food eaten at home stabilizes at higher income levels and proportionate consumption falls; the reverse occurs for meals eaten out. Keeping in mind possible differences between cross-sectional and longitudinal studies, one can predict that Engel's law might hold true in token systems.

Token systems typically require tokens for a wide variety of items. In the token system referred to earlier, tokens were required for two meals a day, cups of tea, watching TV, purchasing items at a ward shop, ward leave, social outings, and so on. Meals might be regarded as essential, and shop items as luxuries. At the ward shop patients could buy cigarettes, matches, tobacco, sweets, drinks, handkerchieves, aprons, etc.

Both longitudinal and cross-sectional analyses of the relationship between income and shop spending were carried out. In the first analysis two periods were studied: a 22-day period approximately 1 month after the token system had begun and the other, a 34-day period approximately 9 months after the system had begun. The percentage of total patient expenditure spent at the shop on any one day was plotted against total income for the same day. In both periods, the proportion of tokens spent at the shop increased as the patient's income increased. The second study examined shop spending for 10 high income and 10 low income patients over a period of 2 weeks. Over those 2 weeks, the high income patients' mean income was 140.2 tokens, and the mean income for the low earners was 94.4. During the 2 weeks examined, mean shop expenditure per patient for the high earners was 50.3 tokens in the first week and 31.5 tokens in the second week. The corresponding expenditures for the low income group were 17.6 and 11.8 tokens respectively. Assuming 100 percent spending of income earned during the fortnight, shop expenditure was 31.1 percent of total expenditure for the low income group and 58.1 percent for the high income group. This cross-sectional study, although relatively indirect, tends to confirm the finding in the longitudinal study that as income increases, the proportion of spending on luxuries increases.

Engel's law predicts that this relationship will be reversed for necessities such as meals. This predicted relationship was tested by a longitudinal study which examined proportionate meal expenditure over two different periods of 28 and 20 days. Results showed that with increasing income, the percentage of total expenditure spent on meals tended to decrease in both periods. The number of meals purchased remained relatively constant as income grew. Records consistently showed that few patients missed meals through being short of tokens. Therefore, as almost all patients spent the same amount on meals, proportionate meal spending would be lower for the higher income patients and higher for the low income patients.

To provide a uniform measure of the responsiveness of consumer demand to price changes, economists have developed a measure called the elasticity of a demand curve. The elasticity of a demand curve is the percentage change in demand that would result from a 1 percent change in price. An item has unit elasticity when a 1 percent change in price causes a 1 percent change in purchasing. Therefore,

a change in the price of such an item will not change the amount of currency spent on it. Unit elasticity is regarded as a convenient dividing point since if the elasticity of the demand curve for an item exceeds one, a fall in price stimulates sales and an increase in price reduces sales. Such items are said to have elastic demands. On the other hand a given percentage fall in price for items of elasticity less than one will induce a percentage sales increase smaller than the price fall and therefore lead to a reduction in the money value of sales. Such items are said to have inelastic demand curves. Studies of demand curves have shown that food and other necessities tend to have inelastic demand curves, whereas luxuries tend to have elastic demand curves.

Application of these concepts and relationships to the token system would, if the economic approach is correct, predict that shop items would have elastic demand curves, since shop spending has been shown to be luxury spending in that system. This prediction could be tested since during the course of the token system program, the price of shop items was changed for various reasons.

In one case, the price of cigarettes was lowered briefly from three to one tokens. In the 2 weeks preceding the price reduction, 270 cigarettes were purchased. After the reduction in price, 617 more cigarettes were purchased. Using a common formula that averages the two levels of prices and quantities as a basis for calculation, cigarettes have an elasticity of 1.07, and showed an elastic demand curve in the token system.

Close relationships between economic theory and token systems have important implications for the managing of token systems. They provide a rational basis for decisions concerning the maintenance of the system. Important practical strategies follow from each of the three areas that have been studied here.

The relationship between income and total expenditure tells the token system planner that if patients are to improve or he is to increase their wages, then he should increase either the range of goods available or increase their prices to cater for the resultant increase in purchasing. If the system planner chooses to increase the range of goods to meet increased demand from higher income, then the best goods to introduce are luxury-type items.

Price manipulation is often used to stimulate expenditure in order to cut back savings. In such cases, knowledge of elasticities is essential. If price changes are used to control token spending, it is essential that the token system planner knows which items have elastic and which items inelastic demands.

The economic principles demonstrated supplement reinforcement principles in the understanding of token systems, and it is clear that economic theory is relevant to the understanding and to the management of token systems. Further analyses of the role of economic principles in token systems would therefore seem profitable.

Psychographics for Market Segmentation

RUTH ZIFF

In the past decade "psychographic segmentation" has received widespread prominence in advertising and marketing research circles. Such prominence developed from the recognition that important demographic distinctions simply do not exist in many product categories and even where they do, one cannot intelligently decide how to attract any particular market segment unless one knows why the distinctions exist. To attract or motivate a particular group of consumers, it is necessary to know how they think and what their values and attitudes are, as well as who they are in terms of the traditional demographic variables of age, sex, income, etc.

The objectives of this study were several: The first was to determine whether a core of attitudes or values could be identified that would have meaning over a large number of individual products within a similar class of products. It was hypothesized that this approach would be viable since it was reasonable to expect that the same values might influence behavior for various related products—for example, such variables as hypochondriasis, fear of drugs, and antipathy to proprietary remedies should be related to usage of many different drug products.

The second objective was to determine whether a core of attitudes or values could be identified that would cut across product classes—that is, be meaningful for drugs and foods and personal and household items—and, if so, to assess whether this would be more or less meaningful than the core developed for a single class of products. The hypothesis here was that certain attitudes or values would relate to diverse product classes—e.g., if a woman were meticulous, this would influence her usage of cosmetics as well as household items; if she were convenience oriented, this might be manifested in both her food and household item marketing behavior.

The study was conducted by mail. The subjects were 1,600 housewives who represented a reasonable cross section of American homemakers in terms of territory, market-size, age, and income. The variables utilized were not restricted to the general personality or life style type. A wide range of variables was included: while some were of the general personality or life style type, most were those described as judgmentally falling into the category of attitudes/needs/values clearly pertinent to the categories under study—nutrition orientation, attitudes about convenience, economy, concern about germs, and the like. No attempt was made to include all the dimensions that might be pertinent to brand choice; emphasis was on covering variables relevant to a number of products.

Two hundred fourteen attitude statements were used, with housewives asked to indicate their agreement or the degree to which the statement described them on a scale ranging in values from five to one. Typical attitude statements were the following:

When it comes to a choice between nutrition and taste in my family meal planning, I put nutrition first.

I wouldn't let animals come into the

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house because of the dirt.
I get upset when things are out of their place in my house.
If there's a flu bug going around, I'm sure to catch it.

Input for these statements was derived from examination of a number of motivation studies, prior research on a variety of categories, internal brain storming and pretesting. In addition to securing responses to these attitudinal statements, the study obtained information on produce usage for 69 different products, brand usage for 38 products, and the usual demographic information.

The analysis provided for two sets of housewife classifications: (1) An overall classification based on the utilization of the full 214 statements, and (2) four individual classifications based on varying numbers of statements deemed relevant to each of four classes of products. The individual classifications were a drug classification, based on drug-related statements; a food classification, based on food-related statements; a personal item classification, based on personal-item related statements; and a household item classification, based on household item-related statements. Having arrived at these five classifications, steps were taken to examine the relationship between the overall and each of the four individual classifications, and to compare the results obtained on the criterion variable—usage of many different products—when the overall versus the individual classifications were used as the basis of segmentation.

Comparisons between alternative solutions resulted in the selection of a six-group solution as most meaningfully classifying the housewives on the basis of the full 214 attitude statements. Examination of data produced capsulated descriptions of each group. Compared to the average, the *Outgoing Optimists* are outgoing, innovative, community oriented, positive toward grooming, not bothered by delicate health or digestive problems or especially concerned about germs or cleanliness. *Conscientious Vigilants* are conscientious, rigid, meticulous, germ fighting with a high cleanliness orientation and sensible attitudes about food. *Apathetic Indifferents* are not outgoing, are uninvolved with family, irritable, have a negative grooming orientation, are lazy, especially in terms of cooking pride. *Self-Indulgents* are relaxed, permissive, unconcerned with health problems, interested in convenience items but with relatively high cooking pride. *Contented Cows* are relaxed, not worried, relatively unconcerned about germs and cleanliness, not innovative or outgoing, strongly economy oriented, not self-indulgent. *Worriers* are irritable, concerned about health, germs and cleanliness, negative about grooming and breakfast, but self-indulgent with a low economy and high convenience orientation.

For each of the four product class segmentations—drug, food, personal and household items—verbal descriptions of the segments were arrived at through examination of the appropriate factor data support. For example, the four drug segments, as compared to the average housewife, may be described as follows: *Realists* are not health fatalists, nor excessively concerned with protection or germs. They view remedies positively, want something that is convenient and works, and do not feel the need of a doctor-recommended medicine. *Authority Seekers* are doctor-and-prescription oriented, are neither fatalists nor stoics concerning health, but they prefer the stamp of authority on what they do take. *Skeptics* have a low health

concern, are least likely to resort to medication, and are highly skeptical of cold remedies. *Hypochondriacs* have high health concern, regard themselves as prone to any bug going around and tend to take medication at the first symptom.

Examination of the relationship between the individual segmentations and the overall segmentations indicates a far from random relationship between the two sets of consumer classifications, with agreement consistent with the expectations engendered by the descriptions formerly developed. Thus, a high proportion of those classified as "Worriers" and few of those categorized as "Contented Cows" on the basis of the overall segmentation fell into the drug "Hypochondriacal" segment, a higher than average number of "Self-Indulgents" were found to be "realists" and a high proportion of "Conscientious Vigilants" were found to be "Authority Seekers." This consistency in classifications was also found in the case of the other categories studied.

Certain assessments seem appropriate at this stage. First, both the overall segmentation based on the full range of items and the segmentations based on the various subcategories of items identified groups of housewives that were relatively homogeneous in understandable, coherent terms—i.e., the descriptions seemed internally consistent and reasonable. Second, the relationship between the two classification systems was not random and was consistent with expectations. Agreement between the two classification systems existed, confirming the hypothesis that the attitudes or values prevailing in one area are not totally independent of those extending to another area. Third, based solely on the overall segmentation, one could speculate on the types of products. The fourth point is that the individual product segmentations, by virtue of their concentration on attitudes relevant to a particular class of products, provided a much deeper understanding of the values and needs in a product class than did the overall segmentations.

Data on product usage for the 12 individual drug products studied among the six segments identified by the overall segmentation indicates that while all groups did not evidence unique patterns in terms of drug product usage incidence, sharp differences existed between the two groups whose patterns would be expected to be most deviant based on their attitudinal profiles. Consistently, the "Contented Cows" are observed to be below average in usage; the "Worriers" are above average in usage. Turning to the relationship between product usage and the segmentation solely derived from the drug-related statements, data demonstrate the validity of this classification system. In each category, the pattern is the one to be expected based on the consumer profiles—the "Hypochondriacs" are high in usage, the "Skeptics" low, the "Realists" and "Authority Seekers" in between.

The study indicates: First, that a core of attitudes/needs/values can be used to provide the basis for a meaningful segmentation for a number of individual products in a broad class of products. The second finding is that a core of attitudes can be used to provide segments that have meaning not only within a class of products, but that are relevant in different classes of products. The third finding is that the core of attitudes—that confined to variables judgmentally expected to be relevant to a specified category of products—provides more insight regarding the bases for the discrimination observed.

Behavior Modification: Application to Manpower Management

FRED LUTHANS and DONALD D. WHITE, JR.

Sophisticated quantitative tools to improve organizational effectiveness have been developed in recent years. The behavioral approach to management has contributed to the better understanding of human behavior in organizations. However, by comparison, fresh ideas and new techniques from behavioral science have not kept pace with technical advances made in management practice. Too often, knowledge in behavioral science is rarely applied to manpower management. Behavior modification may provide managers on all levels with a practical tool for shaping, improving, and motivating behavior of organizational participants.

Behavior modification is derived from B. F. Skinner's operant conditioning. The basic process involves systematically reinforcing positive behavior while at the same time ignoring or exercising negative reinforcements to eliminate unwanted behavior.

The technique concentrates on a person's overt behavior and not on the underlying causes of behavior. The behavioral approach to management has taken an opposite approach by attempting to determine why an individual behaves in a given way. Pinpointing the cause of behavior is difficult because of many independent or related causal factors which affect behavior. Concentration on outward behavior allows the manpower manager to try realistically to modify behavior. Managers are not required to psychoanalyze workers; they need only to have the ability to observe and deal with outward manifestations of behavior. Managers must be familiar with the total behavior patterns of subordinates or workers. From the standpoint of goal attainment, they must then decide which patterns are acceptable, which are not, and what new behavior patterns are needed. Overt patterns may be altered immediately. In time, attitudes may also be affected by a behavior modification program.

There are two primary aspects of behavior modification programs. First, an attempt is made to eliminate unwanted behavior that detracts from organizational goal attainment. Extinction may be accomplished in two ways. Punishment may be applied to cause specified behavior to be abandoned. The difficulty with negative reinforcement is the possibility of "backlash" reaction and a short duration of extinction. Extinction of behavior may also be accomplished through the withholding of positive reinforcement.

A second major goal of behavior modification is to create acceptable new responses to an environmental stimulus. As in eliminating behavior, reinforcement techniques play the vital role in developing new behavioral responses. The process is often complex. For example, some responses which are producing wanted behavior unwittingly may be provoking negative sanctions, for the wanted behavior is obviously a prerequisite before the positive reinforcement can be applied. Direct reward of responses is the best method to stabilize intended behavior patterns. The substitution of new desirable responses in place of behavior

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that is being eliminated is often referred to as behavior replacement, or, more commonly, behavior modification. Thus, the overall purpose of behavior modification is to leave the individual with new or modified behavioral patterns in place of behavior that was deemed to be not wanted or needed.

Perhaps the most important ingredient in the successful application of behavior modification is the administration of the program. Reinforcement must be applied according to a detailed, systematic plan that depends on the nature and degree of behavior that the person presently demonstrates. If the overt symptoms of the desired behavior pattern exist, it follows that no reinforcement of the behavior is possible. One avenue would be to inform the individual what response would lead to a reward.

An alternative approach to reinforcement would require new behavior to be shaped from existing behavior. To move toward the new behavior, a reward may be applied to responses which closely approximate the desirable behavior. Modification or shaping can be accomplished by discriminately employing reinforcement to basic elements of approximate behavior. A closely controlled reinforcement schedule is applied when the wanted end behavior appears. Many types of reinforcement schedules are available. Generally they are classified into a combination of fixed or variable and interval or ratio. A fixed schedule, i.e., reinforcement each time the desired behavior occurs, might be employed until the pattern is at an acceptable level. Later, rewards may be administered on a variable basis. A decision to use a fixed or variable schedule and whether this schedule should be based on time (interval) or the number of performances (ratio) must be carefully analyzed. When conditions permit, variable schedules of reinforcement should be used because they tend to provide the greatest resistance to extinction.

Systems of rewards, which are currently being used by industry and other types of organizations, can be adapted to a behavior modification program. Money, status, promotion, public recognition, and personal praise are all valid reinforcements of behavior. In the typical organizational reward system, no restrictions are placed on the number of stimuli (rewards) which may be used to elicit a desired response. Once an organizational participant is conditioned to one stimulus, a similar stimulus also will evoke the response. This concept, known as "generalization," is significant to organizational reward systems in that it provides a basis for using a variety of similar rewards to reinforce wanted behavior.

A properly administered reward system must determine exactly what behavior is being reinforced. The supposition that the paycheck is reinforcing the job performance is not necessarily valid. A solution to this problem would be to use another type of reward or schedule which may be more appropriately applied to actual job behavior. For example, salary increments granted according to attainment of specific predetermined objectives would incorporate a ratio schedule that would provide more direct reinforcement than salary administered on an interval basis.

Simple application of behavior modification may be made in training workers to use certain methods, perform specific tasks, or to increase their knowledge in a particular area. Most manpower situations are not subject to the high degrees of control that are characteristic of programmed learn-

ing. On-the-job training for specific operations or general behavior adaptation is complicated by more complex environmental factors. For example, if more than one superior has significant influence on the behavior of the worker, they should all participate in the program. Conflicts and inconsistencies in the type of reinforcement given or in the schedule itself will have an adverse effect on the program.

Initially, programs designed to modify or adapt behavior would probably be used in training new workers. However, it must be emphasized that behavior modification techniques are mainly designed to replace one behavior pattern with another. This replacement factor has implications for the retraining of experienced, as well as new, employees. Similarly, behavior modification may be an important tool in overcoming the many problems associated with training minority workers and hardcore unemployed.

Suppose the cultural backgrounds of a group of hardcore unemployed tend to increase the probability of tardiness or absenteeism. A competitive situation might be established where trainees are awarded points or monetary credits for their attendance or promptness. If the man is absent or tardy, his cumulative points or credit totals would be lowered. Monetary bonus payments, gifts, or even personal or public praise can be administered on an interval schedule. Reinforcement in the form of points or symbolic dollars, made immediately upon the recognition of positive or negative behavior, reinforces getting to work on time. Carryover to job performance may be accomplished by generalizing the reward, i.e., changing its form, and by continuing to deliberately reinforce behavior that leads to goal attainment.

Another example could apply to white collar employees. An objective of the sales department is to increase the volume of sales. Each salesman might be given a book in which he records only the amount of his monetary commission and/or points toward a desirable bonus gift immediately following each sale. The record book would be examined first on a continuous basis and later intermittently. The reinforcement that the examination provides will cause the salesman to make entries immediately after each sale and not at a later time. Recording the monetary commission in the record book will directly reinforce each sale that is made, and each sale would, in turn, serve as a stimulus for each subsequent selling situation. Finally, his recognition that sales are increasing will motivate him to continue making entries and would become a self-generating reward. The commission that is recorded reinforces the sale, not the act of making the entry.

Application of the principle of reinforcement is not restricted to individual task performance. An aircraft company in the final assembly hangar of a repair and overhaul operation made a large sign that indicated the number of planes that had passed final inspection and the number which still remained unfinished. When a plane had passed the final inspection phase, bells rang throughout the plant. All work temporarily stopped while employees observed the numerical changes which were made on the sign. The workers were observed to turn to one another to nudge or voice approval concerning their accomplishment. In this case the reward served to reinforce participation in the final product and enabled the employee to see himself as a contributor to overall organizational objectives.

The most far-reaching implication

for behavior modification lies in the area of manpower development and resocialization. Manpower theorists argue that most organizational participants are mature persons, who under proper conditions, seek self-direction and self-control. To those who point out the opposite characteristics observable in many workers, the reply is that most of man's activities are merely a product of the pattern of socialization to which he has been subjected. In other words, the process of socialization has trained him to accept undesirable behavior patterns as a "way of life." If this is the case, how can a manager hope to modify or reverse stabilized patterns of behavior? It is in this context that behavior modification may have tremendous implications for manpower management.

In classical conditioning, a conditioned stimulus elicits a conditioned response. Analogous to manpower management, the worker is told by his boss to work harder, and he responds by increasing his output. However, another outcome may be the creation of conflict between the worker and his superior. Frustration manifested through defense mechanisms, such as aggression or withdrawal may result. Behavior modification allows the worker to emit a response which will affect the nature of the environmental stimulus. The subordinate is not acted upon by his environment as in classical conditioning. Instead, his environment is being affected by his own activities. A properly conceived behavior modification program allows the individual to assert self-direction and self-control.

Manpower managers can utilize behavior modification techniques to generate goal direction and self-control among all levels of personnel. The popular management system, Management by Objectives (M.B.O.), provides an excellent vehicle for such a program. M.B.O. provides an opportunity for all personnel to contribute to job goals and encourages the setting of checkpoints to measure progress. Such a system facilitates achievement motivation, particularly for jobs that can be designed and controlled by the subordinate. Positive reinforcement is inherent in the achievement of objectives. Material rewards, in terms of salary increase, bonus, and promotion, also come from the appraisal by results.

The long-range potential for behavior modification seems limitless. Behavioral scientists conclude that once behavior patterns have been changed, attitudes and opinions may follow. For example, when dealing with the hard-core unemployed, manpower managers may go further than just concentrating on improved performance. Positive attitudes toward attendance, quality of work, and the organization in general may result from a behavior modification program. It is potentially a technique to accomplish organizational resocialization.

Many scholars, humanitarians, and practitioners are undoubtedly troubled by the apparent manipulative aspects of behavior modification and the moral question of who has the right to determine desirable or undesirable behavior. A typical accusation may be that under behavior modification, organizational participants are being manipulated and molded into someone's conception of the ideal "organization man." Manipulation in itself is not the end. Direct applications to manpower management include training, retraining, compensation, absenteeism, tardiness, and motivation of organizational participants. On a more grandiose scale, behavior modification may provide the missing link to the fusion of individual and organizational goals.

Psychology in Communist China

You-Yuh Kuo

Since the fall of the Chinese mainland in 1949, psychology in Communist China has been overhauled. The Communist psychologists use the term "practice" instead of "self-realization," "contradiction" instead of "conflict," or "disequlibirum" and "labor" psychology instead of "industrial" psychology. Traditional Western influence in Chinese psychology is tapering off; a psychology based on dialectical materialism is gradually taking its place.

In the United States the professional journals have their special areas of interest and concentration and publish manuscripts that fit into their publication program. In China a research paper in social science can be published in a comprehensive journal or magazine such as *Scholastic Studies,* which contains articles dealing with social sciences, poetry, arts, theory of music, etc. At the 1963 Annual Meeting of the Chinese Psychological Society, it was reported that there were more than 300 psychological research papers published in various journals from 1963 to 1964. The development of research in various fields is extremely uneven. Most of the articles deal with child and educational psychology. No research is done in the field of social psychology, but some theoretical discussions of social psychology are included. The field of individuality is neglected. The term "Labor Psychology" is used instead of "Industrial Psychology" to emphasize the role of labor instead of industrial production. The term "Medical Psychology" includes both abnormal psychology and clinical psychology.

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In order to understand the psychology of contradiction in Communist China, one must be familiar with the historical background of the theory. The Chinese traditionally think dialectically. The ancient Chinese philosophers consider that opposition exists everywhere in the universe and that there is a certain kind of function which results in the synthesis of contrary systems to form an integrated unity. Mao Tze-tung used dialectical thinking to solve some political and social problems. He considered the law of the contradiction in things as the law of the unity of opposites. But instead of seeing the harmonious part of unity, he emphasized the struggle aspect of the juxtaposition of opposites. His theory of contradiction was used by some psychologists to interpret psychological phenomena such as motivation and perception.

Since psychology is defined as "the brain's reflection of reality, it is determined by the objective reality," the contradictions that exist in objective reality are reflected in the human psyche. According to dialectical materialism, psychological phenomena, like material phenomena, have their own internal and particular contradictions. Reflection of reality is also determined by the human psyche. Chu Chih-hsien outlined some principles of internal contradiction in the human psyche: (1) Subjective and objective contradictions are the direct causes of psychological contradictions. The human brain does not mechanically reflect the objective contradictions. (2) The reflection of the objective process is a part of psychological contradiction. It always takes the form of demands (such as tasks, problems, and

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difficulties, etc.) which become new psychological needs when they reflect on the subjective part of human psyche. (3) The individual's level of cognition and individual qualities which are shaped during past practice constitute the subjective phase. The individual's subjective phase is always the old and steady part of psychological contradiction. (4) In the process of practicing the contradiction between subjectivity and objectivity, the reflection of objective process and subjective internal phase are coexistent but in conflict. The struggle and identity of these two aspects constitute the individual's internal contradiction. Such a contradiction is also the internal and dynamic force in change.

The objective reality is continuously changing and confronts the individual with new demands and problems. Hence, contradiction always exists between the self and the objective reality. In order to unite the contradiction, the individual either changes himself or adjusts to the reality, changes the reality, or changes both. But the individual will never be able to maintain a complete and permanent balance. Since the objective reality is dynamic, it always has demands on the individual; therefore, a new contradicton between reflection of objective reality and subjective internal phase emerges. Such a periodicity of contradiction is the dynamic of personality.

There are some hot debates among Communist psychologists concerning the role of class nature in psychology. Tsao Jih-chang, the vice-president of the Chinese Psychological Society, considers that psychology should study the common laws and principles which underlie behavior. Although he recognizes the importance of individuality and class nature because they are all the reflections of living conditions, he also states that there are common laws in psychology which are true for all individuals in different social classes.

The students in the Department of Education at Ho-Pei University do not agree with Tsao. They consider social class as the individual's reference group which imposes upon him certain attitudes, values, and interests which he is currently holding in his group life. They conclude that class nature is fundamental and substantial, while common laws in psychology are phenomenal and superficial. Therefore, individuality is the individual's reflection of class nature.

According to Chu Tsu-hsiang, some personality characteristics are shaped by class consciousness and the process of participating class struggle. Collectivism is the main personality characteristic of the proletarian class and is formed through class struggle. Individualism and egoism are the personality characteristics of the capitalistic class. The proletarian people are generally honest, hard working, and not afraid of self-criticism, while the people of the capitalistic class are generally lazy, false, and flattering. Because of the social aspect of personality, some psychologists consider that social class analysis should be used as one of the methods in psychological study, and the principle of class analysis must be applied in the research on the psychology of moral education.

Some Chinese theorists consider that Western social psychology's aim is to help the capitalists suppress the workers' class struggle and achieve unity with the laborers by emphasizing the value of human nature, consciousness of kind, imitation, sympathy, form of suggestions, cooperation, etc. The "capitalist social psychologists" emphasize mutual living and mutual

contact in the formation of personality in order to make the laboring class people obey the laws of the capitalist society. Social psychology in the capitalist countries is to help control the crowd; therefore it is to serve the interest of capitalism. Western social psychology is considered to be a pseudo-science by the Chinese Communist psychologists. China Communist psychologists want to work toward a social psychology for the proletarian class. From the evidence of the way the Communist motivates and controls the crowd, remodels the intellectuals, and changes the peoples traditional way of thinking in a short period, we have to believe that the Chinese Communists do have their own social psychology that they have learned from experience.

There is considerable interest in the study of mental abilities and moral development in Communist China. Researchers consider Western intelligence tests biased and invalid. Since psychology is defined as the brain's reflection of objective reality and is determined by objective reality, the study of intelligence should be based on the functioning of the brain (electroencephalographic studies). Traditionally, Chinese education emphasizes the development of morality. This kind of tradition is carried over by Communist China with emphasis on the development of moral judgment in terms of Communist moral principles. Most of the studies dealing with moral judgment and behavior use a combination of various techniques such as questionnaires, personal interview, teacher's rating, and situational assessment. In a study using the experimental method under natural conditions, it was found that lower grade pupils can apprehend, with correct guidance from the teacher, the meaning of discipline, and conform to conscious discipline. In a study of motivational characteristics of moral behavior in children, questionnaires were distributed to 297 pupils of 9 to 16 years to investigate their moral motivation under hypothetical and real situations. It was found that moral motivations of elementary school children are determined mainly by contradictions of environmental and inner factors reflected in their consciousness. Children in the third and fourth grades are aware of the social implications of their behavior, but their behavior is rarely motivated self-consciously. High school pupils can comprehend in a more systematic and generalized way the moral significance of their behavior.

When the Communists took over mainland China, many psychologists who worked in various universities and research institutes left the mainland, and so the Chinese Communist psychologists had to start all over again. Now, many teachers colleges and normal universities have established departments of psychology. Besides the universities, there is an Institute for Psychological Research under Academia Sinica. This institute publishes the *Acta Psychologia Sinica* four times a year.

The Chinese Psychological Society is equivalent to the American Psychological Association. Until 1963 this society had 23 regional banches. In 1962 the CPS established the Committee of Educational Psychology and held its first meeting in Peking. In this meeting it was decided to launch a nationwide study of the growth and development of Chinese children. In China it was traditionally the government's role to set up an educational and curricular program for the universities and schools, whereas the professional meetings of associations and societies only provided the opportunity for ex-

changing knowledge and making acquaintances. But this society set up "Guidelines for Psychological Subjects" which pointed out the directions for the development of studies in psychology. Since then, the Institute for Psychological Research has expanded in buildings and programs, the Central Research Institute for Educational Science has been initiated, and other teaching and research institutions of psychology have started to grow. In 1963 the new "Guidelines for Psychological Subjects" emphasized interdisciplinary research in psychology and called on all local teaching and research units to carry out the goals of the "great socialism" instead of the great society.

As stated above, the *Acta Psychologia Sinica* is the journal of the CPS published by the Institute for Psychological Research and can be ordered through the local post office in mainland China. In 1965 the CPS published *News Letters of Psychological Science* to introduce the development of psychology in China and abroad. Another publication, the *Psychological Translation Bulletin,* has been translating foreign psychological research for a number of years. The above are journals directly related to psychology; other journals, such as *New Establishment, Scholastic Research Monograph of Educational Psychology* also publish psychological studies.

In summary, psychology seems to be primarily a branch of social science, rather than a pure science in Communist China; its function is political and educational. From the articles published in the psychological journals, it seems that the researchers try to seek a psychological basis of communism.

The Chinese Communist psychologists do raise some questions about American psychology. Are the American psychological theories influenced by bourgeois ideology such as individualism? Is American social psychology highly biased in favor of capitalism? The American psychologists may not be aware of these kinds of questions. It is said that understanding others helps us to understand ourselves. If so, more efforts should be made to promote the understanding of Communist psychology.

Social Policy Analysis: The Use of Social Indicators

HOWARD A. PALLEY and MARIAN LIEF PALLEY

Social policymakers are concerned about the need for precise methods of conducting social policy analysis and measuring the success of social welfare programs. Consequently, social scientists are developing social indicators to provide systematic data on the nature and intensity of such problems as hunger, ill health, and inadequate housing, and to measure the costs and benefits of social welfare delivery systems. "Social indicator" has been defined as a normative statistic which facilitates judgments about the condition of society. It is a direct measure of welfare and is subject to the interpretation that, if it changes in the "right" direction, while other things remain equal, things have gotten better, or people are "better off."

The development of social indicators to measure the effectiveness of social policy raises several real problems. Perhaps the foremost is political. Persons who do not want to widen the government role in developing social policy may oppose increased knowledge about social welfare conditions and oppose the use of social indicators. Others may oppose the use of social indicators in the belief that the systematic evaluation of programs may undermine a particular list of priorities.

Methodology also presents problems for it is difficult to develop comprehensive, comparable social welfare data for health, education, and public safety. The difficulty of defining and putting into operation findings of indicators which analyze and develop social policy often keeps analysts from developing indicators to measure social policy effectiveness.

The public has not demanded the development of social statistics. Government committees have suggested the compilation of such data, but not one has had its suggestion accepted. A bill initially called the "Full Opportunity and Social Accounting Act" was introduced into the 90th and 91st Congresses with few results. It proposed that the President transmit to the Congress a yearly "social report," requiring that a council of social advisors be established in the Executive Office of the President, and that a joint congressional committee be established to study all matters relating to the social report.

The need for social statistics for determining the effectiveness of social policy is real and pressing. Perhaps the major constructive action that social policy analysts can take to make the collection of such data easier is to continue pressing for its inclusion in Federal systematic data collections. Also the use of available social indicators for social policy analysis could direct attention to the need for the systematic collection of social statistics and subsequent evaluation of social policy questions on the use of such data.

A Case Study in the Use of Indicators

The following model demonstrates that the variation in social inequities between Negroes and white persons in the United States is not adequate to explain the occurrence or nonoccurrence of racial disorders in U.S. cities between 1963 and 1967. This model can be used with other measurable variables (indicators) to determine whether they might serve as predictors

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of racial disorders in U.S. cities.

The social welfare indicators examined here represent four subjects: economic opportunities (Negro-white income levels), health services (Negro-white infant mortality rates), educational opportunities (years of schooling for Negroes and whites), and safety services (level of police protection afforded the two peoples). For the first three variables, we developed Negro-white differentials. For the last we derived a figure of police protection per 1,000 persons in the population. Our hypothesis was: The likelihood of racial disorders occurring in an urban Negro ghetto is a linear additive function of an economic status differential, a health care differential, an educational achievement differential, and the level of police protection given both Negro and white urban residents. These indexes were examined for 49 U.S. cities, 30 of which had racial disorders between 1963 and 1969.

A factor analysis of the 49 case cities using the variables of income, poverty, and education, showed little relationship between educational attainment for the Negro population and income and number of families in poverty. This preliminary analysis of data was conducted to determine whether it was necessary to consider poverty, income, and education separately, along with safety and health, in seeking the possible conditions leading to racial disorders. Since education bore little relationship to poverty or income, the education variable and the income variable appeared to be part of the same factor, only one of them—the income—was included.

The available data were all aggregate and mostly based on the 1960 U.S. Census of Population. The rationale for using 1960 data rests on the assumption that changes in the relative positions of the races between 1960 and 1964–67, the period covered by our study, were not enough to alter the racial differentials we developed.

The mathematical probit model that emerged from our analysis confirmed that the variability of racial disparities in economic opportunities, education, and health services, in addition to the provision of safety services, will not adequately explain the occurrence or nonoccurrence of racial disorders. The results of the analysis forced us to conclude that, because of the limited variability of the four variables tested, they are poor predictors of the occurrence of urban ghetto racial disorders.

One interpretation of the results might be that as there are no instances where the aggregate Negro welfare indicators are equal to, or higher than, the aggregate white welfare indicators, it may be that relatively lower welfare indicators are the conditions sufficient to produce racial disorders. If so, then it is possible that when aggregate disparities between the races are eliminated to the point that aggregate levels for Negroes on these indicators are about equal to the aggregate levels for white persons, racial disorders will not occur in America's urban Negro population centers.

Another possible interpretation of the findings is that the source of racial disorders is not in the variability of social welfare disparities but somewhere else. A third possible interpretation is that though the variability of the social welfare indicators between cities may not provide the sole conditions for racial disorders, their very presence adds to social "strain." When the threshold of tolerance is passed, people in the ghetto will take part in acts of social disorders.

A Follow-Up Study of Narcotic Addicts in the NARA Program

BERNARD J. LANGENAUER and CHARLES L. BOWDEN

This paper presents the results of short-term followup of male addicts civilly committed to the National Institute of Mental Health Clinical Research Center in Lexington, Ky., under the provisions of the Narcotic Addict Rehabilitation Act (NARA) of 1966.

NARA has four major provisions. Title I authorizes Federal courts to commit for treatment those narcotic addicts charged with certain Federal offenses who desire to be treated for addiction instead of being prosecuted for the criminal charge. After examination by a physician, the addict may be committed for as much as 36 months of combined inpatient and outpatient care. Title II is a sentencing procedure to commit for treatment those addicts who have been convicted of a Federal offense; they are treated in institutions of the Bureau of Prisons. Title III provides for the civil commitment of addicts who have not been charged with any Federal offense. If two examining physicians determine that the person is an addict who is likely to be rehabilitated, he may be committed to a hospital for not more than 6 months, followed by a commitment to 36 months of compulsory supervised aftercare. Title IV authorizes grants to public and nonprofit private agencies to develop comprehensive treatment programs for addicts.

The treatment program during this study was similar for each patient. He was assigned a job that stressed work attitudes, but training aspects of the vocational program were limited. Remedial education and high school courses were available, and vocational testing and planning for aftercare were conducted. Patients participated in group therapy and organized self-government and social affairs. Aftercare planning, which began 1 to 3 months before discharge, consisted of assessment of the patient's history, hospital record, and posthospital plans.

After hospitalization, an average of 5.5 months, the patient was committed to an aftercare agency. Each aftercare counselor had responsibility for no more than 20 patients. Counselors monitored urine testing for opioids and barbiturates, conducted individual and group therapy, and sometimes were instrumental in securing employment for patients. The decision to dismiss a patient from NARA or readmit him to Lexington was based on factors that related to the amount of drug use, ability to work, and willingness to participate in and cooperate with aftercare. For those who were to be recommitted, detoxification in the community was often tried.

The first 252 male Title I and Title III patients discharged from Lexington from July 1968 to June 1969 were studied, and evaluation forms filled out monthly by aftercare counselors were used to obtain data. In addition to the patient's self-reports, results of scheduled and nonscheduled urine tests for opioids and barbiturates were used to determine drug use.

Information was available for 73 to 88 percent of the patients in each month of aftercare. The lack of information on other patients was generally due to the failure of a counselor to

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submit reports. Since the aftercare counselor did not always check every item in the reports, the percentages reported are based on the number of patients from whom information was actually obtained for a particular item.

A patient was scored as positive for opioid use for any month in which he reported using opioids once or had one urine test with a positive reaction for opioids. "Other drug use" refers to any reported use of barbiturates, amphetamines, marijuana, or LSD. A man was classified as working if he had a job for any part of that month or if he was in a full-time training program. He was considered self-supporting if his major source of income was his job.

A patient was classified as recommitted in the month in which the legal proceedings were initiated. A patient was scored as detoxified if he underwent medically supervised withdrawal from opioids in any setting other than Lexington. A patient was classified as evading aftercare if he missed all his appointments for a month and avoided the counselor. He was considered dropped from the program in the month that court proceedings for dismissal were initiated. Patients were classified as being in Lexington if they spent the entire month recommitted at the Clinical Research Center. A patient was scored as arrested if he was arrested for any charge other than one antedating his initial hospitalization. Patients classified as in jail were those who were jailed for the full month.

In their first month of aftercare, 45 percent of these patients used opioids and an additional 5 percent used other drugs. Opioid use was constant over the 8-month period, varying from 42 to 57 percent. The use of other drugs by those who were abstinent from opioids during a month varied from 4 to 12 percent. Other drug use was reported by 11 to 31 percent of the patients who had used opioids during a particular month. Opioid use for any particular month was stable at about 50 percent, but the individuals who made up the figure varied from month to month, with the net effect that at the end of the sixth month only 14 of the 97 patients in aftercare that month had not used opioids at any time during the 6 months.

Eighteen of the 24 patients detoxified in these 8 months had used opioids in the first month of aftercare. Both detoxification and recommitment were of little value in halting opioid use. Eighteen of the 19 patients who were detoxified in their local communities used opioids in the subsequent month. Thirteen of the 16 patients who were recommitted to Lexington used opioids in the first month after return to aftercare.

The percentage of patients who were working increased from 43 percent in the first month to 71 percent by the fourth month and was fairly stable thereafter. The percentage of patients who were self-supporting rose from 21 percent in the first month to 71 percent in the fifth month, then remained fairly stable. In order to determine whether there was any correlation between opioid use and employment or the self-support, we compared these parameters for the sixth month because the percentage of patients working and self-supporting had achieved a plateau by that time. Eighty-four percent of the patients not using opioids in that month were working, versus 55 percent of the patients who used opioids. Seventy-five percent of those who did not use opioids were self-supporting, compared with 40 percent of those who used opioids. An analysis of the third-month figures gave similar results.

The percentage of patients arrested rose gradually from 13 percent in the fourth month and subsided thereafter. The percentage of patients for whom recommitment was recommended was low in the first 4 months but rose to around 10 percent in the following months. From 0.6 to 8 percent of the patients were detoxified in the community each month. A large group of patients evaded aftercare; the average was just under 20 percent from the fourth month on. Seven of the 8 patients who were dismissed from the program had been arrested and convicted of drug-related crimes.

In our study, 45 percent of the patients used opioids almost as soon as they left Lexington. For any of the months studied, approximately half of the patients had used opioids and an additional 5 to 12 percent had used other drugs. Eighty-six percent of the patients had reported opioid use by the end of the sixth month in aftercare.

These patients represented the first who were committed for treatment under NARA. Initial standards of suitability for treatment varied, and many who entered the program were disruptive and unwilling to cooperate with provisions of the program. These results, therefore, reflect the ability of this program to deal both with addicts who were motivated for treatment and with those who were not.

The difficulties of initiating a complex program affected implementation. Few professional persons were trained in problems of drug dependence, and many aftercare counselors were initially inexperienced. The aftercare agency itself was meeting ground for patients, about half of whom were likely to be using drugs at any one time.

Patients who used opioids had poorer records of work and self-support than those not using drugs. It is not clear whether opioid use caused poor vocational performance directly, whether the time and effort necessary to obtain money and drugs precluded effective working, or whether those patients with poorer work skills were more likely to use opioids.

One of the goals of the NARA program is to enable addict patients to function in their communities with the help of the aftercare counseling and supervision. To a large extent, this was not accomplished during the period we studied. By the end of the eighth month, 42 percent of the patients had been recommended for recommitment. From the fourth month on, 20 to 30 percent of the patients in each month were evading aftercare, recommended for recommitment, or both. The large percentage of patients who evaded aftercare is indicative of the inconsistent implementation of NARA. While NARA includes a legal commitment procedure designed to enforce compliance with supervision, its implementation seems to be more along the lines of the traditional therapist-patient relationship. There seemed to be no consistent use of either recommitment or dismissal from the program as a means of enforcing the Act's requirements.

Many changes have been made and continue to be made in the NARA program. Patients who do not desire treatment are now rarely accepted. Greater emphasis is being given to the concept of the self-help therapeutic community, and the use of encounter techniques is increasingly stressed. Whether these hospital changes and the increased experience and expertise of aftercare counselors will improve the program's results will only be known in the future.

State ex rel Carroll v. Junker, 482 P.2d 775, (Washington) Supreme Court of Washington. March 25, 1971

A law teacher and two of his students conducting a class research project were permitted by a Superior Court order to examine 189 randomly selected mental illness files. The prosecuting attorney and others challenged this order as a breach of confidentiality. A Washington statute, regarding mental illness cases, reads: "All files in these cases shall be closed files subject to examination only on court order."

The State Supreme Court stated that the law considers that the atmosphere and proceeding of a mental illness case shall be clinical instead of penal in character. Mentally and emotionally ill persons are to be treated in the same way as are persons suffering from a physical sickness or infirmity. This clinical atmosphere is to be maintained in one way by avoidance of making public spectacles of the mentally ill and closing the files. Another reason for closing the files is that the persons interested in the proceeding may act and speak with candor and forthrightness knowing that the proceeding is for the good of the subject.

Under the Washington statute, "all persons connected with the mental illness proceedings, including the putative patient, are assured by law of a high degree of privacy—one to be breached only when a judge of the superior court . . . decides that opening the files will not harm or embarrass anyone connected with the case, or that an overriding benefit, private or public, will accrue to offset any likely detriment."

The case of the professor and his students differs from the usual case under this statute because this situation involved examination of a substantial percentage of current, and presumably active mental illness files by strangers to all and privy to none of the records which they sought to examine. No notice was given to anyone who had a direct interest in preserving the privacy of 189 mental illness files. No safeguards were set up to preserve anonymity and confidentiality except the self-serving representation of the movants and the terms of the order. The Superior Court did not designate a master or referee responsible to the court to assure that individual privacy and confidentiality not only be kept but maintained after their findings had been publicized. The court order was entered without any notice to anyone who conceivably would have any justifiable interest in keeping the files closed.

The State Supreme Court said that there would have been no manifest abuse of discretion if the court had denied the application to open the mental illness files. The reasons of the parties who wanted to continue confidentiality, anonymity, and privacy in the cases outweighed the declared interests of the teacher and his students. Due to the lack of sufficient safeguards to protect confidentiality and the above stated reasons, the State Supreme Court entered a permanent injunction against the previous court order.

Mental Health News Digests

Information Interchange

The second National Institute of Mental Health Information Interchange was held August 24–27 at the University of Maryland. This year the subject was alcoholism and alcohol abuse. The Interchange was held to bring State, local, and Federal information and education personnel into closer working relations.

The most important aspect of this Interchange was the laying of the groundwork for the new National alcohol information/education campaign. A panel discussed the programs of the National Institute on Alcohol Abuse and Alcoholism. Topics included comprehensive services, drinking drivers, Indian populations, employee populations, and chronic drunkenness offenders. This panel was followed by a presentation of the public service advertising program aimed at drinking drivers by the National Highway Traffic Safety Administration, Department of Transportation. Afterward, there was a presentation of a public service advertising program on the prevention of alcohol problems by the National Institute of Alcohol Abuse and Alcoholism. Various TV and radio announcements were displayed along with several proposed posters for the program. All of these presentations were followed by a discussion and critique. A panel and subsequent workshops were held on State and community alcohol education programs. Several prominent people who are involved in these programs took part in these discussions, which involved the development of recommendations on State and community applications of the proposed alcohol materials. Methods of localization of materials, a master plan for distribution, and the needs of the State and community programs were discussed.

As a followup to last year's Information Interchange, several new NIMH drug abuse films and materials were premiered. Workshops were held on what has been learned in State and local drug abuse information and education programs, and recommendations on what should be emulated, altered, or deleted from alcoholism education efforts were made. Ideas were also exchanged on experiences in current smoking and sex education programs.

Anniversary Award for Senator Lister Hill

Because Senator Lister Hill of Montgomery, Alabama, was unable to attend the Twenty-Fifth Anniversary of the National Mental Health Act conference, the award was presented to Senator Hill by Dr. Bertram S. Brown, Director of the National Institute of Mental Health, and Dr. Eli Rubenstein, Associate Director for Extramural Programs, on June 24 in Montgomery. Senator Hill received the silver anniversary award for having been instrumental in promoting mental health on a national scale.

The 1971 APA Achievement Awards

At the 23rd Institute on Hospital & Community Psychiatry, held September 13–16 in Seattle, the 1971 American Psychiatric Association Achievement Awards were won by two private mental health agencies in California and a city-operated alcohol detoxification center in Washington, D.C.

The Gold Award was presented to Kings View Community Mental Health Center in Reedley, California, for a program of comprehensive services to more than 400,000 people

through contracts with five neighboring counties in central California. The 20-year-old center was started by several Mennonite church groups as a small psychiatric hospital. Individual contracts with Kings View give each of the rural counties autonomy in establishing and developing its mental health program. Local program units have the support of the center's financial and administrative resources, but are free to provide the type of services suited to the community they serve. In fiscal 1970, while statewide admission rates to State hospitals increased by 14 percent, State hospital admissions from the area served by Kings View were reduced by 82 percent. Most patients from the counties who were residing in State hospitals have been returned to their home communities, and have been successfully maintained there through Kings View aftercare programs.

The Alcohol Detoxification Center of the District of Columbia received the Silver Award for its program of emergency care and assistance in cases of simple intoxification. The center, the first in the Nation of its kind, provides a 24-hour service to approximately 1200 cases each month. In 1968, the D.C. Department of Public Health permanently located the center at 619 N Street, N.W. Each patient is given an initial medical screening. If there are no health problems, he is toileted, bathed, dressed in clean pajamas, and put to bed until sober. Nutritious food is considered a vital part of the program, and counseling on nutrition is provided. Group therapy sessions are held each afternoon, and Alcoholics Anonymous meetings are held nightly—which are attended voluntarily by up to 80 percent of the patients. Job counseling and a referral service to other rehabilitative facilities are also offered. The maximum time a patient can receive care in the treatment center, all of which is free, is 72 hours.

The Bronze Award went to Rehabilitation Mental Health Services, Inc., of Santa Clara, California, for a network of four community-based residential programs in the county. In 1956, this organization, through a 3-year demonstration grant from DHEW, established one of the first halfway houses in the U.S. Subsequent grants followed, thereby providing for the development of more residential programs. All of the RMHS programs emphasize a life-management approach in which each activity of daily living is considered therapeutic. Group therapy sessions focus on the practical realities of everyday living; individual psychotherapy is rare and the term mental illness is seldom used. During the day, most of the residents either attend the day hospital, attend school, work, or receive work training or evaluation through the State vocational rehabilitation agency. Community-care home residents participate in an active group-oriented program in an essentially nonmedical setting. The residents of the adolescent residential center attend public schools and vocational programs in the vicinity. The residence workshop serves chronically ill men whose level of functioning is so low that they either cannot qualify for other programs or have failed to remain in them. The initial goal is to enable men to produce noncompetitively. They start with simple jobs (i.e., stuffing envelopes, folding bags) and progress to more advanced ones (i.e., refinishing furniture). The RMHS programs have shown not only that mental patients can be cared for in community residences, but also that such care can be more economical than the alternatives. (From the Oct. 1971 issue of *Hospital & Community Psychiatry*).

Mental Illness and Cancer

An analysis of a 15-year collection of data on patients in the State Mental Hospital of Athens showed that the percentage of mental patients who die from malignant neoplasms is less than one-third than that of the general population in Greece. Similar, confirming results were found in a 20-year period of data collection in the Dromokaetion Mental Hospital, a large private institution. Pooling information from the two sources, the investigators found that in the general population 15 percent of deaths were caused by malignant neoplasms, as compared with 4.9 percent among the mental hospital patients.

In order to determine whether this was a local phenomenon, similar data were obtained from England, Wales, and Scotland. In those countries deaths from malignancy constituted only 5–7 percent of the deaths among mentally ill persons but 17–20 percent in the general population.

Data suggest that schizophrenics, in particular, may be more resistant to cancer than persons suffering from other mental illnesses. Analysis of information from two large hospitals in Athens and one in Moscow indicate that, among mental patients who die of cancer, schizophrenics comprise a small minority.

The investigators, N. C. Rassidakis, M. Kelepouris, and S. Fox, suggest that although much more research is needed, their findings may raise questions whose answers might facilitate better understanding of mental illness and of the neoplastic process. Their report appears in the Summer 1971 issue of the *International Mental Health Research Newsletter* of the Postgraduate Center for Mental Health, 124 East 28th St., New York City, N.Y. 10016.

Prisoners' Children

Traditionally, in almost all parts of the world, some more or less adequate provision has been made for the treatment and rehabilitation of prisoners of society. Except for infants and the very young, however, almost no concern is shown for the children of prisoners. While this problem is deeply rooted in the social and economic fabric of populations, research on the topic is extremely rare.

In an extensive paper, *The Problem of Prisoners' Children,* appearing in the April/May/June 1971 issue of the *Bulletin of the World Union of Organizations for the Safeguard of Youth,* Jan Van Nuland reports results of a preliminary study undertaken as part of the International Programme for Prisoners' Children, an activity developed by the International Catholic Child Bureau in cooperation with twenty-two international nongovernmental organizations. In short, the Van Nuland presentation is a summary of results obtained from a questionnaire distributed world-wide by the many participating groups and representing an initial response to prisoners' pleas to UNICEF for assistance. Among the findings, it includes, under broad topics, the legal situation in the various nations of the earth, the attitude of communities, the effects of imprisonment on child and family, and prisoners' contacts with their families.

NIMH Appropriations

The appropriations bill for Fiscal Year 1972 for the Department of Heath, Education, and Welfare was signed by the President on August 10, 1971. Included were appropriations for the National Institute of Mental Health, as follows:

Research	
Grants	$103,400,000
Direct operations	30,059,000

Manpower development	
Grants	120,050,000
Direct operations	10,365,000
State and community programs	
Community mental health centers	
Construction	15,000,000
Staffing	135,100,000
Narcotic addiction and alcoholism	144,993,000
Childrens services	10,000,000
Direct operations	6,459,000
Rehabilitation of drug abusers	21,923,000
Program support (NIMH staff, Regional Offices, etc.)	14,852,000
Total	612,201,000

Survey of Recent Mental Health Reviews

Each monthly issue of *Index Medicus* contains a separate *Bibliography of Medical Reviews*. Although the bibliography focuses on reviews of biomedical literature, it generally contains several items relevant to mental health disciplines. As a sample, the following citations pertaining to the mental health field were listed in the July 1971 issue:

Lithium and mood disorders (general review). Chazot, G., et al. *Lyon Med.* 225:527–35, 20 Mar 71 (101 ref.) (Fre.)

Behavioral comparisons of mongoloid and nonmongoloid retarded persons: a review. Johnson, J. T. Jr., et al. *Am. J. Ment. Defic.* 75:546–59, Mar 71 (27 ref.)

Fixed forms of behavior and their significance in neurologic and psychiatric clinical practice (II. Rigidity). Zalevskii, G. V., et al. *Zh Nevropatol Psikhiatr* 70:1404–17, 1970 (128 ref.) (Rus.)

Community child psychiatry: evolution and direction. Hetznecker, W., et al. *Am. J. Orthopsychiatry* 41:350–70, Apr 71 (96 ref.)

LSD and genetic damage. Dishotsky, N. I., et al. *Science* 172:431–40, 30 Apr 71 (93 ref.)

The intelligence level in the chromosome aberrations affecting autosomes. Moor, L. *Rev. Neuropsychiatr. Infant* 18:943–66, Dec. 70 (223 ref.) (Fre.)

Genetic counseling. Boczkowski, K. *Pol. Tyg. Lek* 26:444–7, 22 Mar 71 (11 ref.) (Pol.)

Depressions in childhood and adolescence. (I). Malmquist, C. P. *N. Engl. J. Med.* 284:887–93, 22 Apr 71 (43 ref.)

Depressions in childhood and adolescence. (II). Malmquist, C. P. *N. Engl. J. Med.* 284:955–61, 29 Apr 71 (28 ref.)

Information, systems, and psychoanalysis. An evolutionary biological approach to psychoanalytic theory. Peterfreund, E. *Psychol. Issues* 7:1-397, 1971 (203 ref.)

Psychotropic agents in myocardial infarction. Rybakowski, J. *Pol. Tyg. Lek.* 26:319–21, 1 Mar 71 (17 ref.) (Pol.)

Problem of heredity and cytogenetic studies in schizophrenia. Slowik, S. *Psychiatr. Pol.* 5:85–90, Jan-Feb 71 (25 ref.) (Pol.)

recent nimh publications

Single copies of these publications may be obtained from the Office of Communications, National Institute of Mental Health (Publications Issuance Unit, Room 1B64, Parklawn Building, 5600 Fishers Lane, Rockville, Md. 20852). A complete list of all publications available from the NIMH may also be obtained from the Office of Communications. If a price is given, the publication may be ordered in quantity from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Enclose a check or money order payable to the Superintendent of Documents.

Mental Health Directory 1971. This is an up-to-date reference guide to more than 3,000 Federal, State, and local program mental health facilities. Also found within its 480 pages are lists of Regional Mental Health Offices of DHEW-NIMH, State and Territorial Mental Health Authorities, Mental Health Associations, and other sources of mental health information. Public Health Service Publication No. 1268. $3.75.

Proceedings: Third National Conference on Methadone Treatment. This conference was held November 14-16, 1970 and co-sponsored by the National Association for the Prevention of Addiction to Narcotics and by the NIMH. This 149-page booklet covers the proceedings and the wide variety of topics discussed in this meeting: epidemiology, dosage and side effects, treatment of adolescents, prisons, etc. Public Health Service Publication No. 2172. $1.75.

The Scope of Community Mental Health Consultation and Education. The NIMH Mental Health Study Center and Services Development Branch have produced this 32-page pamphlet. Its purpose is to explain what community consultation and education is, what it does and how it works. Public Health Service Publication No. 2169. 25¢.

Crime and Delinquency Research in Selected European Countries. This 21-page monograph reviews European research on crime and delinquency reported in the literature since 1963. The review describes the current state of this research in Europe, identifies research topics, and records comments and conclusions of European criminologists regarding the value of this research. Public Health Service Publication No. 2140. 25¢.

1970 Census Data Used to Indicate Areas with Different Potentials for Mental Health and Related Programs. Methodology Reports. This 33-page report is Series C/No. 3 of the Report Series on Mental Health Statistics. Topics discussed include social area analysis, evaluation of social area dimensions and other relevant area characteristics, and demographic profiles. Public Health Service Publication No. 2171. 45¢.

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